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Drug and Cosmetic Industry

Contents **March 1961 Vol. 88 No. 3**

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Drug & Cosmetic Industry is published monthly by Drug Markets, Inc. Frazer V. Sinclair, President and Treasurer; Paul Alexander, Executive Vice-president and Secretary. Editorial and General Office: 101 West 31st St., New York 1, N. Y., U.S.A. Telephone, LOngacre 3-3177. Publication Address: Sun Printing Corp., 28 Renne Ave., Pittsfield, Mass., U. S. A.

Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneiss, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

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Subscription price $3.00 a year, in advance. Foreign Countries, $5.00. Single copies, 35c. Back issues 50c. Second-class postage paid at Pittsfield, Mass. Member of Audit Bureau of Circulation.

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By the publishers of ***Drug and Cosmetic Industry***

Beauty Fashion. The magazine of personal selling. Yearly subscription in the U.S.A., $3.00.

Drug and Cosmetic Catalog. Directory and data for manufacturers. Published every two years. $4.00 in the U.S.A.

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Keeping Posted

Soap and Synthetic Detergent Sales

Soap and synthetic detergent sales for 1960 totaled 4,367.6 million pounds valued at $1,119.9 million, according to the Association of American Soap & Glycerine Producers, Inc. Fifty-eight manufacturers, representing a substantial proportion of the industry, reported their data. Synthetic detergent sales amounted to 3,310.7 million pounds and $800.7 million. These figures include solid synthetic detergent sales of 2,665.4 million valued at $580.5 million and liquid synthetic detergents sales of 645.3 million pounds and $220.2 million. Soap sales amounted to 1,056.9 million pounds valued at $319.2 million.

Packaged liquid soap shampoos produced by six companies totaled 544,000 pounds valued at $235,000, while miscellaneous soaps, reported by four companies, including cream, jelly, paste, and powder shampoos, totaled 951,000 pounds valued at $156,000. Solid synthetic detergent shampoos produced by four companies totaled 8,557,000 pounds valued at $5,495,000, while liquid synthetic shampoos produced by four companies totaled 12,664,000 pounds valued at $16,670,000.

Shaving soap made by six manufacturers was valued at $1,409,000 for $2,009,000 pounds while shaving creams from seven manufacturers totaled 20,913,000 pounds valued at $20,164,000. Because of the small number of manufacturers reporting shampoo and shaving soap statistics, these have only indicative value.

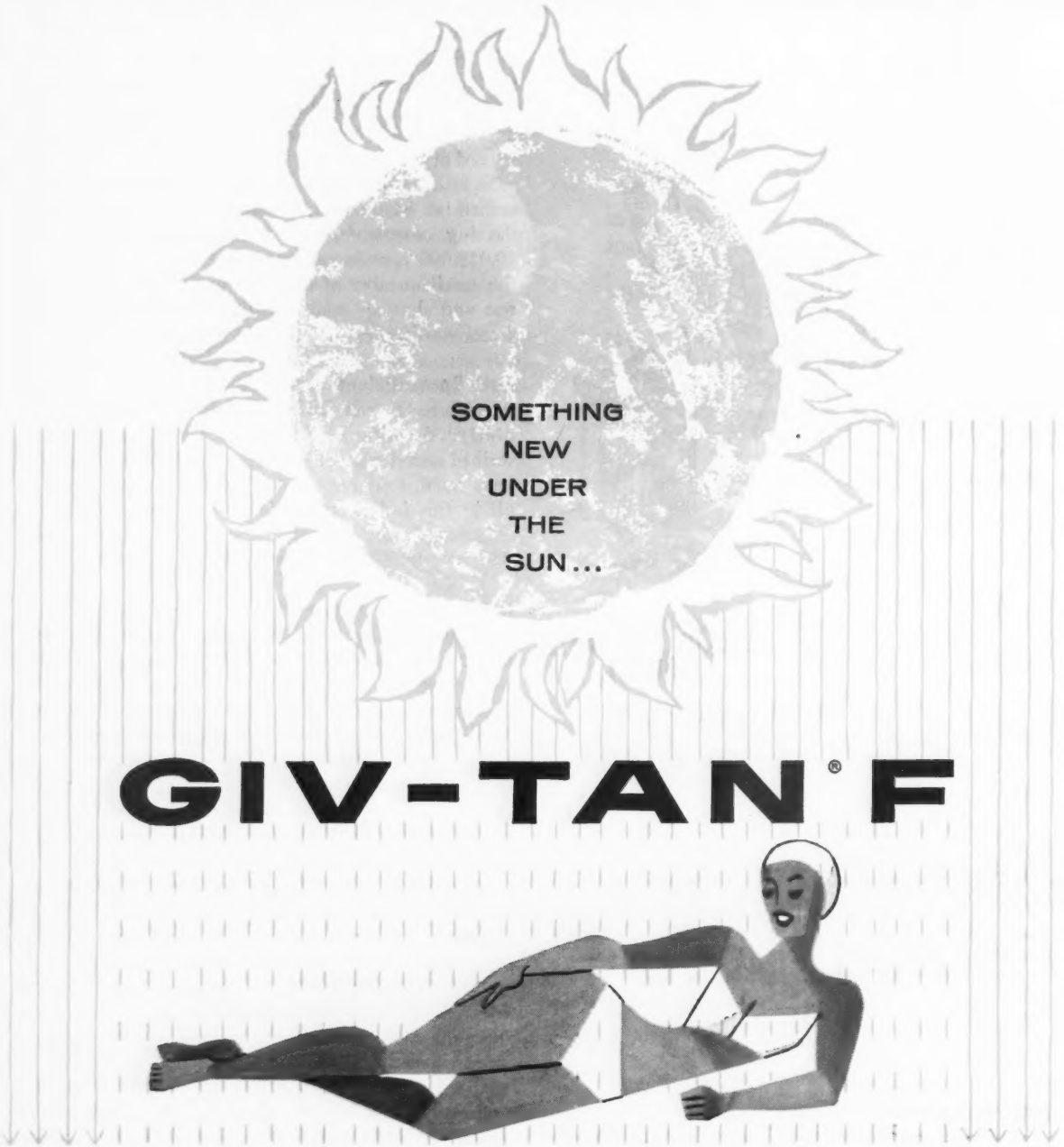
Hair Spray Patent

A U. S. District Court has upheld U. S. Patent 2,871,161 covering PVP aerosols. This patent was described and discussed in DRUG AND COSMETIC INDUSTRY, April, 1959 page 434. The decision, of interest to all in this industry, has been discussed at considerable length in "Patents" and Trade Marks," page 334, by Mr. Thomas Cifelli, Jr., in this issue.

O-T-C Hydrocortisone

Why shouldn't skin treatment preparations containing hydrocortisone be sold without prescription requirements? The hormone is an extraordinarily good agent for relieving minor inflammatory conditions, but, more than this, its safety has been proved repeatedly. In fact, these safety studies have been so exhaustive that we venture the opinion that many substances sold in enormous volume and for many years without restriction would not show as good a safety record. A paper by R. Fleischmajer in *The Journal of Investigative Dermatology*, which we abstracted in "Skin Research" (DCI 88(2): 237) department, piles on even more evidence of safety. Nineteen patients were treated for from three to 20 months with amounts of hydrocortisone totaling from 8,750 to 95,000 milligrams. These very large amounts were applied to wide areas of damaged skin, where the likelihood of absorption is far greater than with mildly inflamed, intact skin. Nevertheless, "clinical follow-up revealed no side effects which could be attributed to the hydrocortisone applications" and laboratory studies provided no evidence of systemic absorption. At a hearing some time ago, the FDA listened to the importuning of dermatologists and would not remove restrictions on the distribution of this compound as an over-the-counter cream, ointment, or lotion to be applied to the skin. These are the same medical people who are still fighting, with very little scientific evidence on their side, the use of hormones in cosmetics, or self-treatment on any harmless level.

The FDA, with an assist from interested segments of the industry, might well reopen the question of over-the-counter topical hydrocortisone for the benefit of the consuming public.



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Food and Drug Administration Plans

The Food and Drug Administration's expansion plans, calling for a 15 per cent increase in staff and appropriations for the fiscal year starting next July have already been approved by Secretary Ribicoff. More will be made available, if necessary, to implement further "consumer protection." In the next five years, FDA expects to double in size and to reach deeper into cosmetics, radiation contamination, and pesticide residues.

The broad goals are to ban dangerous chemicals from cosmetics and food and require the testing and identification of poisonous compounds in household products. Colors in foods, drugs, and cosmetics will be checked; controls will be imposed on packaging materials; food additives will have to be proved safe. Some of the standards imposed may be too rigorous; nevertheless, the use of safrole has been barred in soft drink flavors, and the limits imposed on the use of folic acid in vitamin and food supplements has resulted in a loss of between $5 and $10 million to the drug industry, in returned products.

Although the rush is now on for food additive applications, color additives in cosmetics and drugs must be proven safe before January 1963. Costs of these tests may run from $50,000 to $200,000 per item. Some cosmetic colors may be in for trouble. The FDA is backing a law to require cosmetic manufacturers to prove the safety of all cosmetic ingredients and is showing special interest in hair dyes.

The Ulcer Market

According to a survey by *Modern Medicine*, about 1,865,000 persons in the United States are under medical care for peptic ulcers. Medications prescribed for and administered to these patients are valued at approximately $6.4 million, manufacturers' value. Prescriptions account for two-thirds of ethical ulcer medication, while the other third is dispensed by physicians or administered in hospitals. There is no way of apportioning the amount of over-the-counter antacids used for gastric upsets or the self-medication of ulcers. Prescription anticholinergics and antispasmodics together account for $2.2 million of manufacturers' sales; antacids total $1.7 million in prescription volume at manufacturers' prices; sedatives, ataraxics, vitamins, hematinics account for $1.1 million; and others $1.5 million.

Modern Medicine predicts that anticholinergic sales for ulcer therapy will show a downward trend because of the small degree of enthusiasm for these products indicated in medical writing. The publication further predicts that research for truly effective products could lead to a widely expanded market.

Welfare Pharmacy Rebates

Merck Sharp & Dohme, Division of Merck & Co., Inc., has proposed a plan to help states meet the cost of prescriptions filled in retail drug stores for welfare patients. The Squibb plan seems to be identical. Merck proposes to reimburse individual states a sum equal to 10 per cent of the welfare prescription money they spend in private pharmacies for the company's products. The basic requirement is simply that each state furnishes the company with a verifiable monthly statement of welfare dollars spent on MSD products in private pharmacies. The company hopes that the proposal will help individual pharmacists by encouraging programs under which welfare patients would continue to purchase drugs in the customary manner.

The Squibb plan also calls for 10 per cent payments to states based upon the amount paid for filling welfare prescriptions. All Squibb prescription products, including specialties and generic name products under the Squibb label, would come under the new program.

It remains to be seen now if these plans, if accepted by the states, will counteract some of the pressures being built up for generic name prescribing, and how they will fit in with the various systems of retail pricing used by pharmacists.

1960 New Drugs

The nation's smaller pharmaceutical manufacturers led the drug industry to a record number of new pharmaceutical introductions during 1960, according to Pharmindex, Portland, Oregon, a new product reference system. New pharmaceuticals totaling 718 in 1960 represented an average of 3.1 products each from the 232 manufacturers announcing new items, slightly higher then the 1959 average of 2.7 products.

Smaller firms, with less than full national distribution, led in the number of items introduced. These companies increased their average rate of introduction to 3 per firm, compared with 2.3 in 1959. A large number of national manufacturers marketed only a single new product last year.

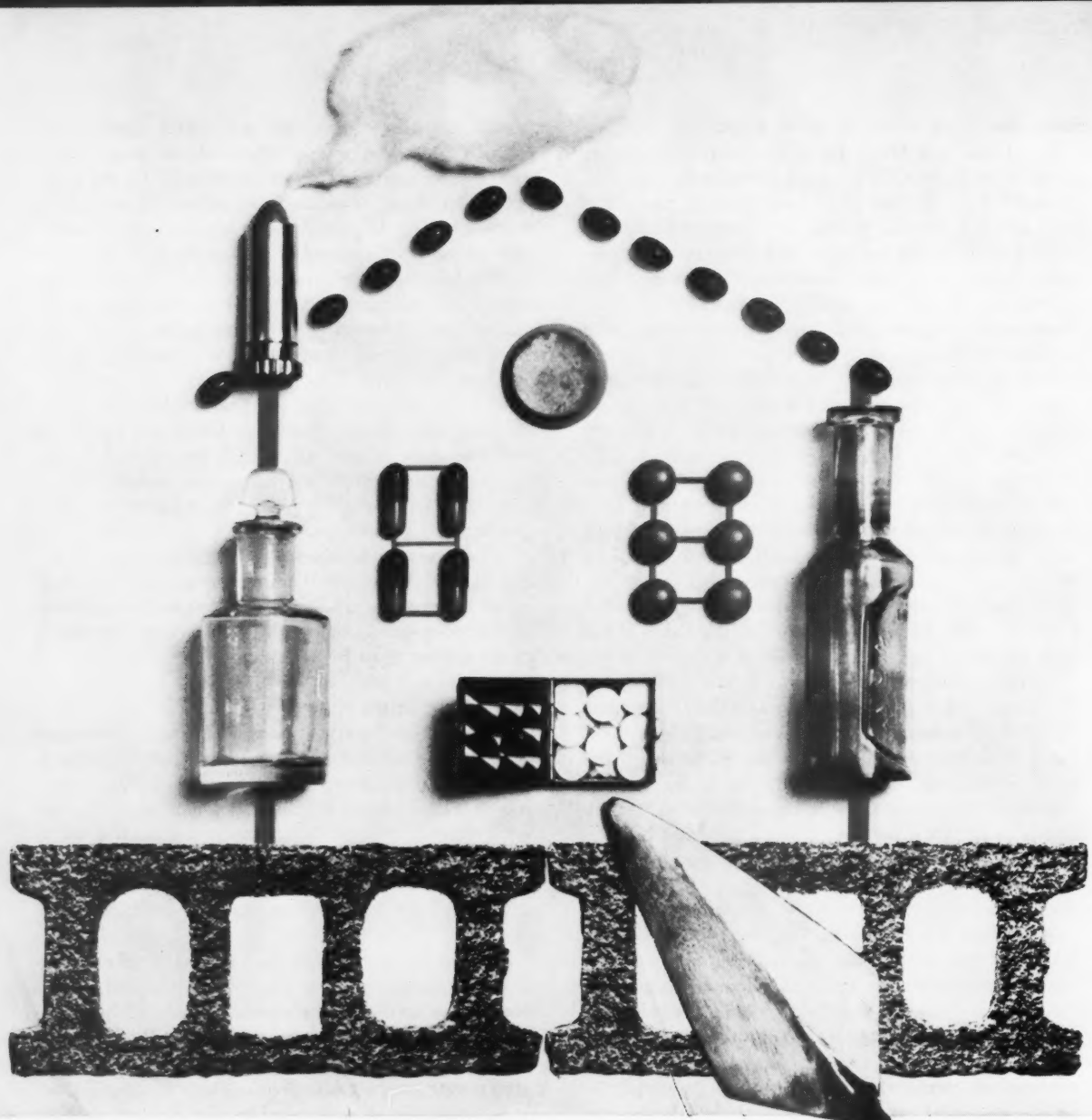
Dermatologicals accounted for the greatest number of new products, or 91 out of the 718 total. Gastrointestinal medications and respiratory products each numbered 76, while nutritional and vitamin products totaled 68. Cardiovascular products introduced numbered 45, psycho drugs 51, and anti-infectives 41.

Of the new products included in the tabulations, 23 per cent included only one active ingredient; multiple ingredient products accounted for 62 per cent of the output national companies and 79 per cent of the new preparations from the smaller ones.

AMA Fights Social Security Medical Care

The American Medical Association has announced an all-out effort to prevent passage of President Kennedy's medical care program. It described the program as the most deadly challenge ever faced by the medical profession.

The association will provide all member doctors with posters entitled "Socialized Medicine and You" for display in their offices. The drive may also be con-



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ducted by radio and television spot announcements as well as by national and local advertisements in newspapers and magazines.

The AMA attitude seems not to be shared by the American Dental Association. Dr. Charles H. Patton, president of the ADA, warned that the health professions must do more than oppose health proposals they consider unworkable or undesirable. He said "thundering anathemas against programs we do not consider workable without at the same time presenting more feasible techniques is a futile exercise and is not responsible leadership." In clinical practice, the patient must often accept conclusions based upon the authority of the practitioner. In socio-economic areas, the health professions still should vigorously lead, but in these areas they should not act primarily as dentists or physicians, but as citizens with expert knowledge.

HEW Administration

Key appointments in the Department of Health, Education, and Welfare include, along with Abraham Ribicoff as Secretary; Wilbur J. Cohen, Assistant Secretary for Legislative Matters; James M. Quigley, Assistant Secretary for Federal and State Matters; Alanson W. Willcox, General Counsel; Boisfeuillet Jones, Special Assistant for Health and Medical Affairs; Luther L. Terry, Surgeon General, Public Health Service.

In the Department of the Treasury, Harry J. Anslinger remains as U. S. Commissioner of Narcotics.

NWDA Drug Market Data Book

The National Wholesale Druggists' Association has released for general distribution its *1960 NWDA Drug Market Data* book, available at $10 a copy from the Association.

The 220 page book contains sections on "Domestic Sales of Pharmaceutical Preparations in Manufacturers Sales Dollars," "Estimated Number of Licensed Physicians in U. S.," "Marketing and Promotion of Pharmaceuticals," "Pharmaceutical Advertising," "Summary of 1959 Operations by NWDA Drug Club Areas." Included in the latter, broken down by counties, are the number of independent and chain drug stores; county population; total drug store sales; NWDA distribution area; number of physicians and amount of their purchases; number of hospitals and amount of purchases; amount of prescription sales and total sales of ethical drugs for the United States.

Declining Death Rates

The improvement in health levels in this country has been one of the most dramatic changes of the 20th Century, according to a study released by the Health Information Foundation.

In 1900, the death rate in the United States was 17.2 per 1,000 population, but declined to a low of 13.2 in 1915, rose slightly in 1915 and 1916, and peaked to 18.1 in 1918 because of the severe influenza epidemic. A slow downward trend in mortality rates then resumed until 1938, when marked improvement set in, at least in part because of the introduction of serum therapy, chemotherapeutics, and antibiotics, to reach a record low of 9.2 per thousand in 1954.

The 1960 rate was estimated at 9.4.

The general pattern of mortality rates by age is much the same now as it was in 1900—very high during infancy, lowest in the 10 to 14 range, and increasing in all other age groups. The rate of decline has been greater for females than for males since 1900, while white and non-white mortality rates have come closer together in 60 years.

In 1900 the major communicable diseases were prominently represented among the leading causes of death, but by 1959 their place had been taken by the so-called "degenerative" diseases and by accidents. As the communicable diseases have been brought under control, deaths have been concentrated into a smaller number of leading causes. In 1900, influenza and pneumonia, with a rate of 202.2 per 100,000 population, accounted for 11.8 per cent of all deaths; in 1959 the rate was 32.5 and corresponded to 3.5 per cent of the total. The tuberculosis death rate was 194.4 per 100,000, or 11.3 per cent of the total, in 1900 but only 6.7 per 100,000, or less than 1 per cent of the total in 1959.

Diseases of the heart, however, accounting for a death rate of 137.4 per 100,000, or 8 per cent of the total, in 1900, in 1959 accounted for a death rate of 366.3 or 39 per cent. Cancer as a cause of death rose from 64.0 per 100,000 in 1900 to 147.1 in 1959.

Flu and Cold Vaccine Demand

According to some makers of influenza vaccine, demand is surprisingly high so far this year, possibly spurred by the British epidemic, and much of the demand comes from companies treating employees at reduced or no cost. Some companies are pushing all employees to be vaccinated; at least one is offering a cold vaccine and anti-cold tablets.

Absenteeism from illness seems to be less during recessions.

Colgate Reorganizes Research

The Colgate-Palmolive Company has realigned its research departments for expanded activities in its new research center being built adjacent to Rutgers University. A centralized Research and Development Department has been formed under Dr. John R. Brown, Jr., vice-president for research and development.

Under the new plan of organization, the former Household Products Division and Toilet Articles Division Product Research Departments have been consolidated with the former Corporate Research and Development Department, which handled fundamental, long-range studies.

Technical activities will be divided into two areas,

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biological and chemical. Dr. Joseph Brant is director of research-biological products, Dr. L. D. Apperson, associate director-oral products, Dr. Richard B. Wearn, director of research-chemical products. R. T. LaPier has been appointed to the newly created position of director-administration, planning and control for the entire department.

MMM and Warner-Lambert Merger Dropped

According to a statement by William L. McKnight, chairman of the board of Minnesota Mining and Manufacturing Company, and Elmer H. Bobst, chairman of the board of Warner-Lambert Pharmaceutical Company, the Department of Justice for several months, at the request of the companies, has investigated the legality of the proposed merger, but has still expressed no opinion. Because the merger has been held in abeyance for so long, a number of problems have come up. Consequently, the boards of the respective companies have mutually agreed to terminate negotiations.

1960 Sales and Profits

Abbott Laboratories 1960 sales increased 2.7 per cent in 1960, from $122,602,000 to $125,968,000, while earnings declined by 4.6 per cent, from $12,989,000 to $12,385,000. Overseas and chemical business did well, but domestic results were affected by reduced antibiotic prices and higher operating costs.

American Hospital Supply Corporation 1960 sales climbed 18.4 per cent to reach $100,618,070. compared with 1959 sales of $84,993,329. Earnings were $4,212,241 in 1960 and $3,784,290 in 1959, an increase of 11.3 per cent.

Avon Products, Inc., net sales in 1960 reached $168,187,500, an increase of 18.5 per cent from sales of $141,904,759 in 1959. Net income increased by 22.4 per cent, from $14,394,963 to $17,619,157.

Eli Lilly and Company consolidated net sales in 1960 were $178,548,000, compared with $187,010 in the preceding year. For the corresponding periods, net income was $18,752,000, compared with $23,446,000. Sales and profit decline were attributed to rising costs of doing business, the marketing of relatively few new products, and increased competition. Research and development expenditures reached a new high of $19.7 million for 1960, an increase of $1.4 million over the preceding year. The company is expanding its manufacturing and marketing programs abroad, with new plants going up in Italy, Venezuela, and West Germany, and a new plant completed in Australia. A company has also been formed in France.

Sales of *Merck & Co., Inc.*, in 1960 were $218.1 million compared with $216.9 million in 1959, while net income declined by 7.3 per cent from $30.0 million to $27.8 million. Continued price declines for bulk vitamins and vaccines and increased for competition were primarily responsible for reduced income.

New records in both sales and earnings for 1960 were reported by the *Norwich Pharmacal Company* in a preliminary report. Consolidated net sales in 1960 were $45,165,000 compared with $40,669,000 in 1959; profit before taxes was $11,815,000 compared with $10,281,000 while net income was $5,951,000 as against $5,148,000.

Net sales of *Park, Davis & Company* in 1960 amounted to $200,002,706, an increase of 4.4 per cent over 1959 sales of $191,526,698, while income declined by 1.6 per cent from $30,960,700 to $30,470,464. Factors contributing to the decline in earnings were a sharp reduction in the price of polio vaccine, substantial increases in expenditures for research, increase in certain taxes, and higher costs for labor, services, and transportation of merchandise.

Chas. Pfizer & Co., Inc., world-wide sales in 1960 reached $269,376,092, compared with $253,672,721 in 1959, while earnings increased from $24,862,955 in 1959 to $26,183,317 in 1960. All outstanding preferred stock of the company has been called for redemption. Sales of Terramycin increased domestically and abroad while bulk chemical sales increased or were sustained in most product areas. Vitamin and citric acid sales were lower in the United States. Capital expenditures were $23 million, research expense $13.4 million.

Consolidated sales of *Richardson-Merrell Inc.*, formerly Vick Chemical, for the six month period ended December 31, 1960 were $78,866,070, an increase of 14.7 per cent over sales of $68,779,553 in the same period of 1959. Earnings after adjustment for foreign operations were $10,211,072, for the last six months of 1960, compared with $8,434,540 in the corresponding period of 1959.

Sales of *William H. Rorer, Inc.*, totaled $11,395,222 for the year 1960, a gain of 26.3 per cent over the $9,024,591 reported in 1959, while net income increased from $1,314,787 to $1,812,591, or by 37.9 per cent.

G. D. Searle & Co. reported 1960 net earnings of 7,457,000, compared with $7,298,000 in 1959 while sales were $36,907,000 in 1960 and $34,509,000 in 1959. For the fourth quarters, sales in 1960 were $9,503,000 and net income $1,790,000, as against 1959 sales of $8,773,000 and net income of $1,730,000.

Consolidated net sales for *Smith Kline & French Laboratories* rose 7 per cent in 1960, but net earnings decreased 4 per cent. Sales in 1960 were $144,523,323, compared with $134,890,663 in the preceding year while net income after taxes was $24,024,690 in 1960 against $25,005,738 for 1959.

The company also announced that it has arranged to purchase Julian Laboratories, manufacturer of steroid intermediates, with plants in Chicago and Mexico City. SK&F now has under license several compounds which it is studying for antiviral activity; one of these, abitylguanide, also called ABOB, is now being marketed in Sweden and in England.

Progress with FATTY ACIDS

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Napalm incendiary bombs, used in the Korean War for skip-bombing, are compounded of Oleic Acid, Coconut Fatty Acids, and Naphthenic Acid. Similar formulations are now used to treat non-productive oil wells, to clean the wells, and promote the flow of oil.

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Color 5¼" Lovibond Yellow	1.5 max.	12 max.
Color Gardner 1933		2 max.
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Saponification Value	209 – 212	260 – 270
Acid Value	208 – 211	260 – 270
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WASHINGTON VIEWS

BY JACOB RECK*

D&C Control Legislation Static

There are yet no signs as to when Congress will schedule hearings on legislative proposals that would impose additional controls on drugs or cosmetics. The House leadership's tight squeeze in winning the fight to increase the size of the Rules Committee suggests the resistance that may be encountered by some of the President's economic and social legislative recommendations, even though clearance for floor action is now facilitated. There has been no headlong rush to get started on the President's legislative proposals! Instead, the approach has been cautious and the impression evoked is that much backstage compromising and wooing of votes are taking place to forestall the possibility of an embarrassing defeat—or what might appear to be one—for any of the President's recommendations. All this will take time, several months or more, with the result that so-called special legislation will be laid aside until after a disposition of the Administration's major recommendations.

Drug Counterfeiting Probe

Slowed down a bit by the loss of its Chief Counsel, Paul R. Dixon, who is now Chairman of the Federal Trade Commission, the Kefauver Senate Subcommittee again seeks the limelight with its investigation of drug counterfeiting. At the hearings, Kefauver aims to find out the extent of the practice of replacing an efficacious drug by something completely worthless. He is not interested in the substitution of one brand for another, where both are efficacious.

Kefauver's drug control legislation will be introduced some time in March. It will include provisions dealing with plant licensing, patent regulation, generic name prescription drugs, pharmaceutical advertising claims, and drug efficacy, to be followed by hearings to query representatives of the AMA and other physicians' groups about the provisions of his bill.

In obtaining its annual $450,000 appropriation, Kefauver's Subcommittee told Congress that information in its files "reveals the existence of certain financial activities and interconnections of leading firms in the drug field which are properly a subject for inquiry."

The hearing aids industry is about to learn of Kefauver's "trial by headlines." His subcommittee reports that, with the exception of drugs, the product on which it has received the most complaints alleging excessive prices is hearing aids.

Another Attempt at FTC Face-Lifting?

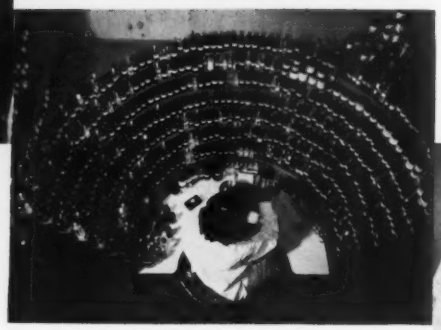
The Federal Trade Commission has a new, personable, energetic, crusading chairman in Paul Rand Dixon, former Chief Counsel and Staff Director of the Kefauver Senate Antitrust and Monopoly Subcommittee. A Democrat who served as an FTC trial attorney from 1938 to 1957, with time out for World War II naval service, Dixon is familiar with the FTC set-up. With his appointment, FTC control shifted from the GOP to the Democrats. Commissioner Philip Elman, former Assistant to the Solicitor General, a political independent, joins Dixon on the FTC "bench," as another Kennedy appointment. Everette MacIntyre, General Counsel for the Patman Small Business Committe of the House, has been named to replace Commissioner Secrest, when the latter's term expires next Spetember.

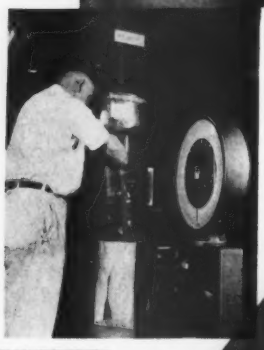
This change in FTC control is accompanied by the usual prediction that the agency will undergo another face-lifting! With the new chairman's background with the Kefauver Subcommittee in mind, some envision the transformation of FTC into a powerful, hard-hitting, vigorous agency that will rely mainly on litigation—costly time-consuming, and unpredictable though it may be—to sustain his views on how to protect the free competitive enterprise system. We hear that the Commission's traditional voluntary compliance and industry-wide consultation programs, particularly in the antitrust field, will be de-emphasized.

One wonders where the money and personnel are to come from to enable a return to the case-by-case system, especially since FTC has the enormous responsibility of supervising the competitive practices of our vast multi-billion dollar economy with only a piddling annual budget and a limited staff. FTC's failure, a decade ago, to cope with an ever increasing enforcement problem forced it into a voluntary compliance program to supplement litigation, because it lacked the funds and staff to engage in a broad program of cumbersome, lengthy, hit-and-miss prosecutions. As the recent Landis Report pointed out, "The industry-wide consultation program can cure in a few weeks competitive ills that would require several years of formal litigation to cure."

However, it must be conceded that the new chairman, through his responsibility for the direction and organization of the agency, can exercise an enormous influence on FTC and pervade it's staff with the Kefauver philosophy with respect to impeding the concentration of economic power and the maintenance of price competition. As Kefauver's counsel, Dixon learned that, with respect to administered prices, it is increasingly difficult to find evidence of conspiracy or collusion. He also recognizes that mere identity of

for creative fragrance **TALENT**





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prices, in and of itself, has been construed as not being enough to constitute a violation. Nevertheless, Dixon will explore to what extent the antitrust laws can be used to make an assault on prices in which, some industries, appear to be administratively set by the leader and followed by the rest of the industry.

In addition to being burdened by routine business, Chairman Dixon will find the rules of procedure at the quasi-judicial FTC more restrictive than the *modus operandi* in conducting the free-wheeling Kefauver probes. The purpose of the latter is to determine the extent to which the antitrust laws are inadequate and develop the need for additional legislation, whereas the FTC is bound to enforce such laws as they find them, in accordance with sound judicial interpretations.

FTC's enforcement activities involving false and misleading ads will continue to lope along and, as in the past, priority will be given to products that get the spotlight at congressional hearings. A few years ago, FTC doted on dentifrices and weight reducers when a congressional committee criticized the advertising claims made for those products. Similarly, last year's Kefauver hearings brought about greater emphasis by FTC on drug advertising. Because cosmetics are less important than drugs in their effect on the public health, and due to a bottleneck in its Medical Division, FTC has paid very little attention to cosmetic advertising in the past year.

A Hair Dye by Any Other Name

The hair coloring and beauty salon industries are vigorously opposing the Food and Drug Administration's proposed regulation which would re-interpret the term "hair dye" to exclude from its meaning all dual-purpose hair colorings, such as hair rinses, tints, color shampoos, which perform some other function, in addition to coloring the hair. The effect of the FDA proposal would be to deprive these hair coloring products of the special exemption Congress provided for hair dyes in both the 1938 law and its 1960 color additive amendments. If FDA's revised definition of a hair dye should become effective, dual-purpose hair colorings will be driven from the market because they use noncertified coal-tar colors, which are not entitled to provisional listing during the two and one-half year transition period set up by the color additive amendments. The proposal would also require all hair dyes to be prominently labeled with the words "hair dye."

In its brief opposing the regulation, the National Beauty and Barber Manufacturers' Association challenged the authority of FDA to add to or alter the definition of a hair dye. It contends that Congress, in according a special exemption to hair dyes, provided a clear, unambiguous definition of a hair dye in the 1938 law and intended that term to mean *all* articles that alter the color of the hair, including dual-purpose hair colorings. Further, it contends that Congress carried over this definition, by direct reference, when it enacted the 1960 color additive amendments. The NBBMA brief states that if Congress had delegated authority to FDA to re-define the term "hair dye," such delegation would be unconstitutional, in contravention of the due process clause, because it would empower FDA to deprive dual-purpose hair coloring producers of their property without providing them with an opportunity for judicial review of the FDA action.

FDA issued an interpretive regulation within six months of the enactment of the 1938 law, in which it advised that the term "hair dye" includes *all* articles which alter the color of the hair. It also ruled in an FDA trade correspondence letter that dual-purpose shampoo tints are considered to be hair dyes. As a result, NBBMA has charged FDA with gross administrative inconsistency and asserts that it is estopped from backtracking from its earlier position.

As to the proposed FDA requirement that hair colorings be prominently labeled with the name "hair dye," the Association's brief points out that neither the 1938 law nor its color additive amendments requires the label of a cosmetic, including a hair dye, to bear the name of the cosmetic.

The hair coloring industry is at a loss to understand FDA's sudden antagonism toward hair dyes, particularly in view of the pat-on-the-back these products received from FDA Commissioner Larrick in a letter to the industry in 1955, in which he noted that the experience and evidence with respect to coal-tar hair dyes "does not in our judgment require any major changes relating to the use of these materials."

The beauty salon industry is up in arms because the proposed FDA regulation threatens one of its major sources of revenue.

United Front for Fair Trade?

Recent conferences between the groups supporting NARD's approach to federal fair trade legislation and those endorsing the Madden Quality Stabilization bill (HR 116) may provide the impetus to get the fair trade campaign off the ground. The Quality Stabilization bill has been endorsed by leading national associations in the furniture, office machine, jewelry, sporting goods, and electrical appliances fields.

Minimum Wage for Retailers

The stiffest opposition to the President's minimum wage recommendations is aimed at his proposal to extend coverage to any enterprise, including leased and franchised businesses, which has one or more retail or service establishments, if annual sales gross at least $1 million. This has been condemned as a complete nullification of the commerce clause of the Constitution. Opponents of the proposal fear that, once Congress imposes federal wage-hour controls on any part of the retail and services trades, it will become that much easier in subsequent years to keep whittling away in this area of local commerce until all retail and service establishments, regardless of sales volume, come under the federal wage-hour law. The long arm of the Federal Government again reaches out for jurisdiction over drugstores, beauty salons, barber shops, department stores, and other purely local businesses.

Hazardous Substances Labeling Penalties

With the exception of products that are highly toxic, extremely flammable, and flammable, FDA has announced there will be no penalties or seizures until August 1, next, for other hazardous substances whose labeling does not comply with the provisions of the new law. Some department stores, in requesting cosmetic producers to guaranty that products comply with the Federal Hazardous Substances Labeling Act, have overlooked that food, drugs, and cosmetics are exempt.

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COSMETICS AND PERFUMES

The Industry Today

With this first of a series of articles, the staff of Drug and Cosmetic Industry is initiating a statistical study of the cosmetic industry. We hope in due course to explore the statistics of every aspect of distribution and marketing that will assist manufacturers and distributors to operate more efficiently. Statistical research was done by Dorothy Kroll.

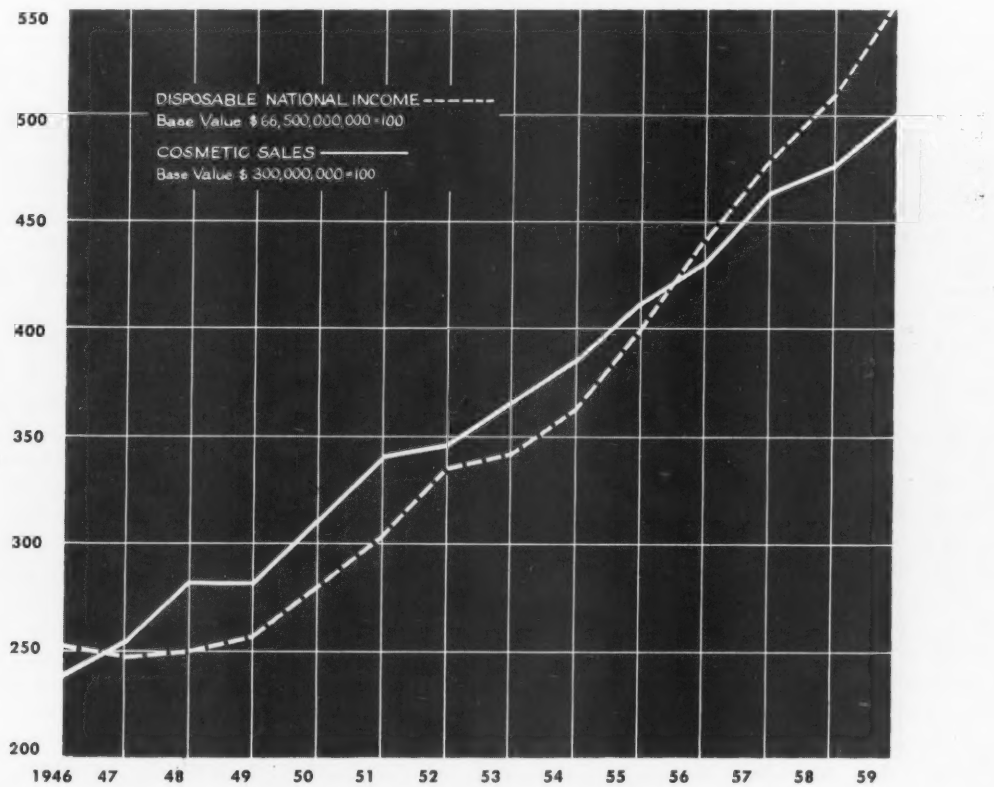
The data for the ensuing article have been gathered from Government sources, from other published material, collated and refined by the personal knowledge of this staff, and by discussion with industry leaders. These are, then, estimates, and we believe well-informed ones, and are certainly subject to revision as more data become available.

Industry retail volume for 1960 was $1,730 million, 4 per cent greater than the $1,660 million of sales in 1959, which was 9 per cent greater than 1958 sales volume of $1,520 million.

In the table (right column, page 303) are estimates by the Toilet Goods Association for retail sales of cosmetics, excluding toilet soap.

In the chart below, which compares cosmetic sales with disposable national income, figures have been converted to indexes to emphasize points of comparison. What shows clearly is that in the post-war years from 1947, cosmetic purchases tended to parallel national income; since 1956, however, the proportion of income spent for toilet preparations has increased at an accelerating rate, and this remains an obvious point of attack by merchandisers—to saturate the market, and then to increase sales still further by making it attractive to spend still more of income on useful items.

The product sales table shows total retail sales for the years 1958, 1959, and 1960 with breakdowns into categories of toilet preparations, and finally sales of individual items. Outstanding in 1959 as compared with 1958 sales, were increases in aerosol shaves, hair coloring, eye make-up, and colognes, in bottles and



in spray packs, among others. Although the over-all rate of increase was less in 1960, the industry still showed its stability by marking small increases while other branches of the economy were retarded. This style-oriented merchandising is more affected by changes in types of hair styling, and attitudes toward make-up, or by new promise of enhancing attractiveness, than by general economic conditions. Fragrance preparations, for men as well for women, moved forward in 1960.

PRODUCT SALES (000 omitted)

	1958	1959	1960
Grand Total	1,524,800	1,662,000	1,730,000
Fragrance Total	104,200	125,000	140,000
Perfumes	26,050	27,900	31,800
T W & Cologne	78,150	97,100	108,200
Hair Preparations Total	465,000	502 000	517 000
Shampoos	128 500	143,000	144,800
Hair Wave and Spray	76,000	74 200	76,400
Hair Dressing	50,300	55 500	56 700
Hair Tonics	67,700	74,600	76,300
Hair Coloring	48 000	60,600	68,600
Cold Wave	65,200	63 500	64,500
Professional Wave	26,200	27,000	26,100
Depilatories	3,100	3,600	3,600
Shaving Preparations Total	118,600	124,400	127 000
Brushless Cream	11,200	8,400	7,000
Lather Cream	9,400	7,500	6,000
Cake, Stick	6,600	5 500	5 000
Aerosol Shave	32 800	43,000	44,000
After Shave	51,200	55,000	60,000
Others	7,400	6,000	5,000
Dentrifices Total	286,000	294,500	303,000
Toothpaste	226,500	227,000	231 000
Tooth powder	6,000	5,500	5,400
Denture cleaner	9,100	9,800	10,600
Mouth wash	44,400	52,200	56,000
Cosmetics Total	551,000	616,100	643,000
Hand Lotion	40,200	42,600	43,400
Hand Cream	13,400	14 500	14,900
Manicure	28,900	30,400	31,700
Bath Preparations	17,400	23,000	26 000
Sun Tan	12,300	14,800	15,800
Deodorants	80,000	92,300	98,600
Cleansing Creams	49,900	53,500	51,300
Foundation Creams	9,900	10,700	11,000
Lubricating Creams	28,900	31,500	30,600
Other Creams	21,200	23,600	24,600
Liquid Face Creams	18,400	19,000	20,800
Lipsticks	79,800	93,900	95,100
Rouge	6,800	7,400	7,200
Mascara & Eyeshadow	14,900	17,800	22,600
Talc & Toilet Powder	42,500	47,500	49,000
Liquid & Cake Make-up	18,000	19,200	20,000
Face & Cake Powder	54,000	58,000	64,200
Face Lotions	14,500	15,900	16,200

The Potential Market

Men's lines increase in importance, as do family hygienic items like dentifrices and deodorants, yet the basic market for cosmetics is strongly tied to the female population. They are part of the world and domestic population explosion; the Census Bureau predicts special growth in the teen-age and elder citizens categories.

These extra women will also have at their disposal increasing amounts of purchasing power. Rising incomes, particularly in the important middle income group, can be translated into ever increasing cosmetic sales volume.

The shortening of the work week has increased the amount of leisure time for the American woman. She is "forced" to take more interest in her appearance if she is to "keep in step with her sisters."

Various cosmetic products, considered at one time to be used exclusively by models or actresses, have become popular with the average woman. Her acceptance of these products as necessities, rather than luxuries, has helped to boost sales.

Estimated Female Population, by Area of Residence: 1950 and 1959
(In Millions)

	Urban	Rural Nonfarm	Rural Farm
1950	49.6	14.3	12.0
1959	54.8	23.6	10.6

Median Income of Families and Individuals; by Area of Residence: 1950-1958

	Urban and Rural Nonfarm	Rural Farm
1950	3,188	1,790
1951	3,546	1,953
1952	3 611	2 011
1953	3,981	1,926
1954	3,949	1,803
1955	4,195	1,937
1956	4,468	2,149
1957	4,648	2,274
1958	4,745	2,486

Cosmetic Establishments

The 1958 Census of Manufacturers, issued by the Bureau of Census, reports the shipping of toilet preparations valued at $1,046 million, an increase of 57 per cent over 1954.

The number of establishments with 20 or more employees has increased 9 per cent since 1954, thus increasing the number employed by 19 per cent. Payroll in millions of dollars has increased by 41 per cent.

General Statistics for the Toilet Preparations Industry: 1958 and 1954

	1958	1954
Value of shipments (millions of dollars)	1,046.3	667.1
Number of establishments with 20 or more employees	181	167
Number of employees (thousands)	29.4	24.8
Payroll (millions of dollars)	133.6	94.7

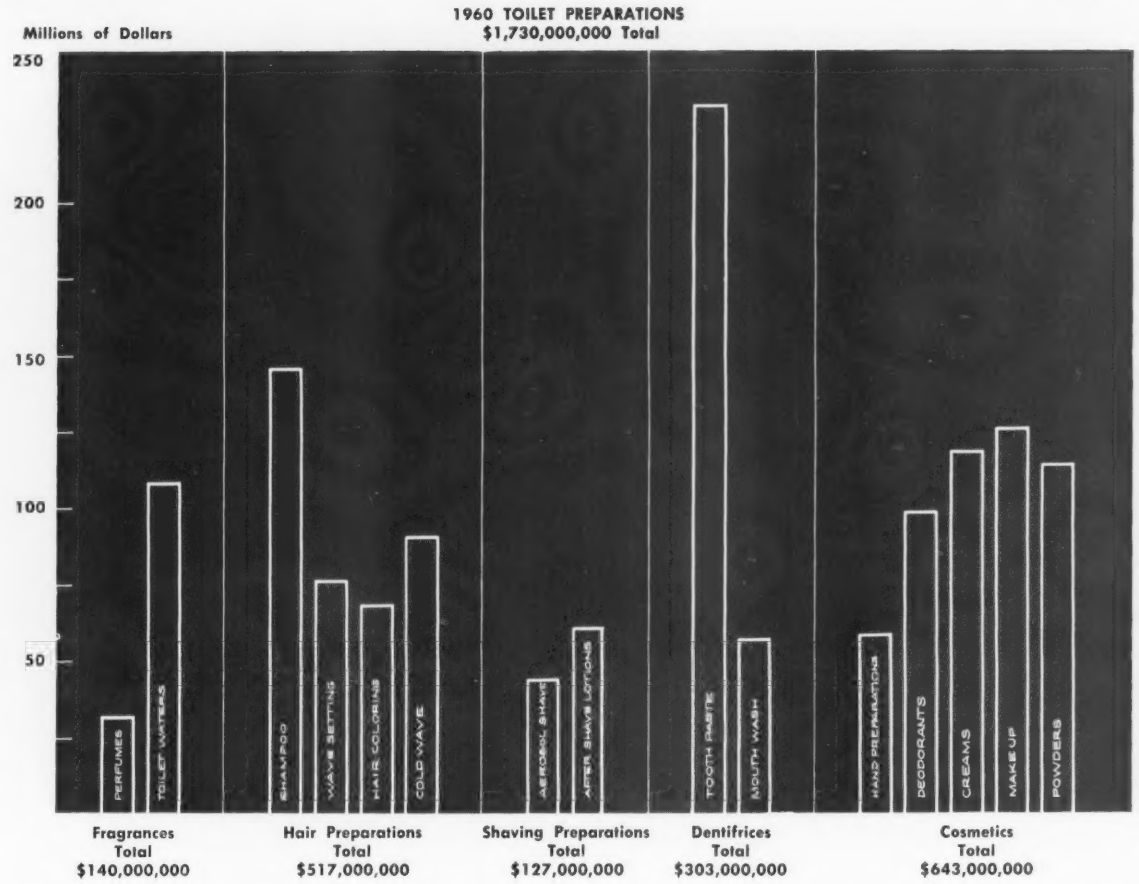
Market Distribution

The manufacturer must develop the best possible distributional system for his products to reach the greatest number of consumers.

With the tremendous movement to the suburbs in recent years, came a change in consumer shopping patterns. Cosmetic outlets for personalized selling, such as department and speciality shops have been supplemented by supermarkets and self-service food stores where customers can pick and choose from a shelf or counter. These outlets, not including such products until a few years ago, now account for a substantial proportion of the total volume.

Certain outlets boast of their greater share of the market for particular cosmetic products, however, an important point must be considered here.

All outlets do not carry a full brand or price line for a particular product. Department and specialty



stores carry only higher-priced brands and products, while variety stores carry low and medium-priced ones. For example, eye makeup is, for the most part, a lower-priced item and while usage is on the upgrade, total sales volume does not account for a major portion of the cosmetic market.

SALES THROUGH THE VARIOUS TYPES OF OUTLETS: 1950 to 1959

	Chain & Independent Drug Stores	Dept. & Specialty Stores	Food Stores	House -to- House	Ltd. Price Variety Stores	All Other Outlets
1950	37.0%	27.0%	6.1%	14.0%	11.0%	4.9%
1951	36.0	25.5	8.5	16.2	10.0	3.8
1952	34.5	22.0	14.0	17.5	8.5	3.5
1953	32.0	22.1	15.5	18.3	8.4	3.7
1954	30.2	22.5	17.1	19.4	7.5	3.3
1955	29.4	22.3	17.9	20.0	7.3	3.1
1956	29.3	21.6	19.1	19.6	7.2	3.2
1957	28.6	20.6	20.3	19.7	7.3	3.5
1958	27.1	19.2	22.3	20.0	7.9	3.5
1959	26.8	18.1	22.9	20.5	8.4	3.3

The Toilet Goods Association

Different areas of the nation are responsible for different proportions of total sales volume. Just what were the contributions of various regions to total sales? Within limits, this information can be garnered from figures released by the Internal Revenue Service for taxes collected on retail sales of taxable cosmetics.

Holiday seasons greatly affect cosmetic sales. Not only do cosmetics make desirable gifts, but it is a time when social activity reaches its peak. Manufacturers of fragrances and hair preparations, such as colorants and sprays, report the December holiday period as their biggest in the year.

Many cosmetic products are exclusively seasonal (suntan preparations, etc.) while sales of other respond to weather changes affecting the skin, (hand cream, face creams, etc.) •

PERFUME, COSMETIC & TOILET PREPARATIONS SALES AT RETAIL
(Figures do not include toilet soaps)

Year	Sales in Millions of Dollars	Year	Sales in Millions of Dollars
1914	39.8	1937	374.0
1915	45.0	1938	412.3
1916	71.5	1939	425.1
1917	95.4	1940	449.9
1918	103.7	1941	463.6
1919	116.5	1942	481.4
1920	129.5	1943	507.5
1921	126.0	1944	593.0
1922	147.3	1945	711.3
1923	194.6	1946	758.2
1924	220.3	1947	743.8
1925	256.4	1948	749.8
1926	300.2	1949	770.8
1927	329.7	1950	840.1
1928	355.2	1951	912.8
1929	378.4	1952	1,004.0
1930	336.2	1953	1,020.8
1931	297.1	1954	1,086.8
1932	288.4	1955	1,192.2
1933	300.3	1956	1,321.0
1934	324.4	1957	1,430.7
1935	322.1	1958	1,523.7
1936	336.5	1959	1,662.2

The Toilet Goods Association

Presumably, everyone who reads this magazine is connected in some way with the drug and cosmetic industry. The question, then, is: Why aren't we all rich?

DRUGS AND COSMETICS ON WALL STREET

BY MILTON MOSKOWITZ

I have been browsing in the archives of Wall Street and I find that the shares of drug and cosmetic companies have skyrocketed in price over the past ten years. It seems that there are few industries in America that can boast of the stock appreciation realized in drugs and cosmetics. Put yourself back ten years. If you were working in this industry in 1950 and if you had some spare cash for investment purposes, you could have picked almost blindly among the companies operating in your industry—and reaped quite a tidy capital gains. Big companies, small companies, medium-sized companies—it wouldn't have made a significant difference which type you picked. Naturally, some companies have performed better than others. However, virtually all of the well-known names in this industry have shot forward at a spectacular, breathless pace. You could have collected by random choice a group of 20 companies and have had your five-year-old boy throw darts to determine which six you would put your money behind—and the chances are excellent that you would have nothing to regret today.

The stock prices have, of course, responded to the general expansion of the companies themselves. Drug and cosmetic sales have certainly moved up sharply in the past ten years. However, the record shows that stock prices have done *more* than just respond to the gains in sales and profits. They have, in fact, moved upward more rapidly than sales and profits. For example, take price-earnings ratios, a measure Wall Street uses to indicate the value placed on a company by investors. In 1950, American Home Products stock was selling for about 10 times the company's earnings per share; by 1955, the PE ratio had moved up to 15 times earnings; it went to 18 times in 1958 and to *25 times* in 1959. Similarly, Avon Products sold for 7 times earnings in 1950, 12 times in 1955, and 28 times in 1959. Parke, Davis & Company sold for about 10 times earnings in 1950; last year it sold at 20 times. The Upjohn Company, in its first year on the market (1959), sold at 25 times earnings.

This upsurge reflects the different evaluation Wall Street puts on these companies today—particularly those in the drug field. These companies have been admitted into that glamorous Wall Street classification, "growth company." Wall Street has noted well the effect a new "wonder drug" can have on sales and profits. It has also noted well the large amounts of money being set aside by pharmaceutical producers for research. These companies are therefore being valued for their "potential," a potential that goes well beyond the sales possibilities of the current product line. A new drug, Wall Street realizes from experience, can have an explosive effect on a company. This is why investors today must pay dearly for shares in these companies and be satisfied with dividends that amount in some cases to paltry returns of 1 or 2 per cent on their investment.

Wall Street is more sophisticated today than formerly about drug company shares but there is still a good deal of nervous reaction. A report that a drug company is engaged in some cancer research project can send shares skyrocketing. Johnson & Johnson recently leaped ahead $7.00 in one day on news that it was marketing a new mouthwash, Micrin. On the other hand, Carter Products, maker of Miltown, tumbled precipitately last year on the information that Librium had spreadeagled the tranquilizer market. (The Dreyfus Fund, a leading mutual fund, has recently been selling out its U. S. drug shares, and in the fourth quarter of 1960 it made an initial com-

	$100 INVESTED in THESE 10 COMPANIES IN 1950	WAS WORTH THIS IN JANUARY, 1961
American Home Products	$ 100	$ 1,300
Smith, Kline & French	100	1,500
Lehn & Fink	100	700
Gillette	100	1,000
Norwich Pharmacal	100	1,500
Plough	100	1,500
Pfizer	100	500
Richardson-Merrell	100	1,200
Mead Johnson	100	1,200
Bristol-Myers	100	700
Total	$1,000	$11,100

WIDE WORLD PHOTO

mitment in the Swiss shares of Hoffman-LaRoche, whose U. S. subsidiary developed Librium.)

Because of their potentially explosive situations, drug and cosmetic companies have had heavy play from mutual funds and other investment companies. For example, as of September 30, 1960, investment trusts held 11 per cent of Gillette's stock, 7 per cent of Avon's, 17 per cent of Schering's, 8 per cent of Bristol-Myers', 7 per cent of Johnson & Johnson's, 9 per cent of Merck's, 8 per cent of Pfizer's, and 15 per cent of Revlon's.

Company managements are well aware today of Wall Street's impact. There are few companies that do not practice financial public relations, keeping the investment community abreast of developments. Partners in brokerage houses are welcome at the plant. Company presidents and chairmen appear frequently before security analysts. News of a product breakthrough often appears first, not in *The Journal of the American Medical Association*, but in *The Wall Street Journal*. As the industry has expanded and capital requirements have become greater, more and more companies have gone public. Revlon, Carter Products, and Upjohn have all become public companies in the past five years. Companies have also found it more desirable to have shares listed on major exchanges. Upjohn, Revlon, and Carter went directly onto the New York Stock Exchange. Smith, Kline & French and U. S. Vitamin have passed from the over-the-counter market to the Big Board. Listing is useful in establishing a market value for the company's stock. This becomes important in a merger, when shares are exchanged. The story has been told of how Francis Brown of Schering forestalled a takeover attempt by Revlon. As Revlon began acquiring Schering stock on the open market, Mr. Brown had Schering's stock split two-for-one and merged with White Laboratories, thereby assuring management effective control of the company.

Let's take a look now at some individual companies to see how they have fared on the stock market—it's a revealing picture.

American Home Products. One of the best records in the industry, AHP stock could have been bought in 1950 at $30 a share. The stock split two-for-one in 1957. Today that $30 share is worth $400 (two shares each selling for $200 around February 1). In other words, AHP stock has appreciated about *13 times*. By contrast, AHP sales have increased only about *three times* over that same period.

Avon Products. This is almost too fantastic to be believed. Avon, which is still selling on the over-the-counter market, could have been bought 10 years ago for $20 a share. Let's assume you had $2,000 then and bought 100 shares. Avon paid a 3 per cent stock dividend in 1952, and 4 per cent stock dividends in the years from 1953 through 1958. The stock was split two-for-one in 1955 and 1956, and three-for-one in 1959. If you had stayed with the company, your original 100 shares would today be 1,560 shares, worth $124,800 at the end of 1960.

Bristol-Myers. This company's sales have nearly tripled since 1950. But the value of its stock has gone up by more than six times. Its stock was selling for $25 a share in 1950. It split three-for-one in 1959 and each of these shares was worth more than $60 at the end of 1960.

Carter Products. Went public in 1957, selling

(*Continued on page 348*)

Traditional
CHINESE MEDICINE

BY ALBERT S. KESHEN

Taiwan's herb shops prescribe medicines developed from formulas 3000 years old.

A seahorse, one of the natural elements used by herbalists in the preparation of cures for bodily ills. Such cures, drawn from sea life, flowers, animal skins, and other materials, are described in the ancient annals of Chinese medicine going back some 3000 years or more.

Two young clerks in an herbalist shop in Taipei mixing cures extracted from natural sources. A piece of dried snake compounded into medical form is a cure for rheumatism; boiled powdered deer horn makes a tonic; compounded animal skins and roots stimulate the appetite.

There are more than 10,000 medical practitioners on Taiwan, formerly known as Formosa, and the island has a well-ordered system of modern research and practice to help the sick, but a great many Chinese still accept their traditional cures.

More than 3000 years ago, a Chinese doctor wrote that Chinese medicine is based on nature and "must be utilized to assist the body to build resistance." This is a theory vividly depicted at the Peiping Acupuncture Shop in Taipei, where gather many of the practitioners of herb medicine of the capital city. There are nearly 2000 herbalists in Taiwan, all of whom follow the traditional routine of treatment.

If Ah Tso has not been feeling well for several days and his wife finally pursuades him to see a doctor, he is likely to go first to a herbalist. His illness is internal, a pain in the abdomen, so he goes to an internalist.

Western doctors would take a pulse reading as the initial step in determining how sick the patient may be. The Chinese herbalist also reads the pulse, but he has more than 100 different diagnoses based on 27 different types of pulse readings; they have been described as "scattered, large, irregular, like willow flowers blowing in the wind."

The doctor then observes his patient's appearance. The left cheek indicates the state of the liver; the right cheek and the nose, the lungs; the upper lip and the ears, the kidneys; the forehead, the heart; and all around the mouth, the spleen and kidneys. After carefully noting the color of Ah Tso's tongue and the condition of his hearing, the doctor writes out a perscription and hands it to his patient.

Ah Tso's next stop is the herb shop, the local equivalent of the Western druggist.

The druggist opens several drawers and decorative bottles and, taking ingredients from them, places them on a small piece of paper. Each is carefully weighed and separately wrapped, with Chinese characters explaining the dose and method of using.

Ah Tso then heads home to brew the herbs, thus following a time-honored practice that thousands of Chinese follow when illness strikes.

Centuries ago, when a person was ill, relatives would scour the hillsides for herbs and leaves, which would be boiled in water and either made into a potion, or into a solution in which to bathe for external maladies. From this practice evolved the specialists in herbs who are commonly called Chinese herb doctors.

In the practice of herb medicine there is no particular herb prescribed as a panacea for any given

disease, but, instead, herbs are described in terms of their supposed effects on certain parts of the body. Herbal practitioners have divided the human body into three parts—the upper is described as the "floating" portion, the middle as the "in between," and the lower as the "submerged." Herbs are prescribed for the area of illness.

Some of the remedies commonly sold are dahlia for fever, animal skins and roots for stimulating the appetite, fritillaria and almonds for coughs, and orange peel for lung complaints.

Elements for a variety of cures as prescribed by a Taipei herbalist, which are compounded in an herb shop for the patient with a proper prescription. Fritillaria and almonds are considered good for coughs, orange peel for lung complaints, and dahlia is taken to reduce a fever.

Dried jasmine flowers are supposed to soothe the body, ginseng or deer horn is boiled in water to drink as a tonic, and sulphur is taken as a digestive stimulant or disinfectant.

Rhinoceros horn is said to bring down a temperature, because of its cooling effect. A piece of dried snake is taken for rheumatism, for a snake's body contains ingredients that can help the patient to relieve pain and stiffness. The bile of a cobra is for curing trachoma or other types of conjunctivitis, and the horn of an antelope, ground to powder, is used to soothe the nerves.

The Yellow Emperor's classics of Internal Medicine, written more than 3,000 years ago, shows that the Chinese people were interested in the development of mineral deposits and acquired an early knowledge of geology and mineralogy. From this knowledge, various treatments for disease were developed, using minerals and herbs as curative agents. A list of more than 100 herbs and their uses, together with curative effects, was recorded in a Chinese classic of medicine, *Pan Tsao Ching*, attributed to Emperor Shen Nung, but actually written in the days of the Ch'in and Han Dynasties, about 200 B.C.

It is common knowledge that herbs and natural oils are the basis for many remedies used in Western medicine. Therefore it is no surprise that Chinese herb doctors claim that many of the great discoveries in Western medicine have already been known and practiced for many years in China. They state that, while Western medicine only learned in 1909 of the effectiveness of using poison as a curative—as arsenic is administered for syphilis, the Chinese were using this method some 300 years earlier.

A similar claim is made for anesthetics, discovered by Western medicine in 1847, but used by the Chinese as early as the second century A.D., when a Chinese doctor named Hwa Tu is said to have removed a poisoned arrow from a patient's arm after first anesthetizing it with a solution made from a poisonous plant grown in the mountains near Tibet.

The shelves of a Taipei herbalist shop resemble most pharmacy shelves, with the exception that there are no packaged factory-made cures. Everything is prepared by hand from a prescription, which is provided by the traditional Chinese doctor after he has made his diagnosis.

Modern pharmaceuticals, in contrast, are here prepared in a Taiwan factory using the U. S. style of preparation and packaging. Taiwan's pharmaceutical plants are now producing a variety of such medicines, some locally, others imported and packaged there for domestic sale.

Although the art of herbalism is centuries old,

(*Continued on page 350*)

Dr. Lieberman here deals with the specific procedures of developing a new product, carrying further his discussion of techniques of product development in our February issue.

THE NEW PRODUCT

BY S. V. LIEBERMAN, Ph.D. CONSULTANT

An assignment to participate in the technical design and creation of a new product will have an impact that varies with the participant. His background and its depth, his attitude toward responsibility and challenge, his assessment of his part and that of other participants—all will have the most immediate bearing on the plan and execution of the project.

In modern organizations, a group of people are involved, and each will influence the whole and the whole will influence its parts. We may assume that the group has the requisite background, and that the response to the challenge will be satisfactory. As a result, all aspects of the project will be considered, to produce a complete plan of action including scheduling and assessment of all stages. Such a group will recognize the broad outlines and general nature of the procedures to follow and the problems to discuss. Details will naturally differ with each project, but, despite special circumstances requiring different approaches, in the main, a group charged with the responsibility can rely on past experience. Such a group can align the technical problems to be considered in a sequence that will minimize inefficient planning and action. Not every step in the sequence can be neatly delineated, tied in ribbons and set aside before proceeding to the next step, but any move in that direction will be better than chaos because it reduces the number of reconsiderations that always accompany the sequence.

A product program will often be better planned by moving backwards. Much like the intuitive mathematician who decides first on the solution to his problem and then proves his answer, planning should first decide what the product is to be. Technical men, aware of research difficulties, may not like this approach; nevertheless, it will often save time and money. If the final product can be properly visualized, it is relatively easy to point out areas requiring more information and to concentrate experimental effort. If necessary, the end result may still be changed.

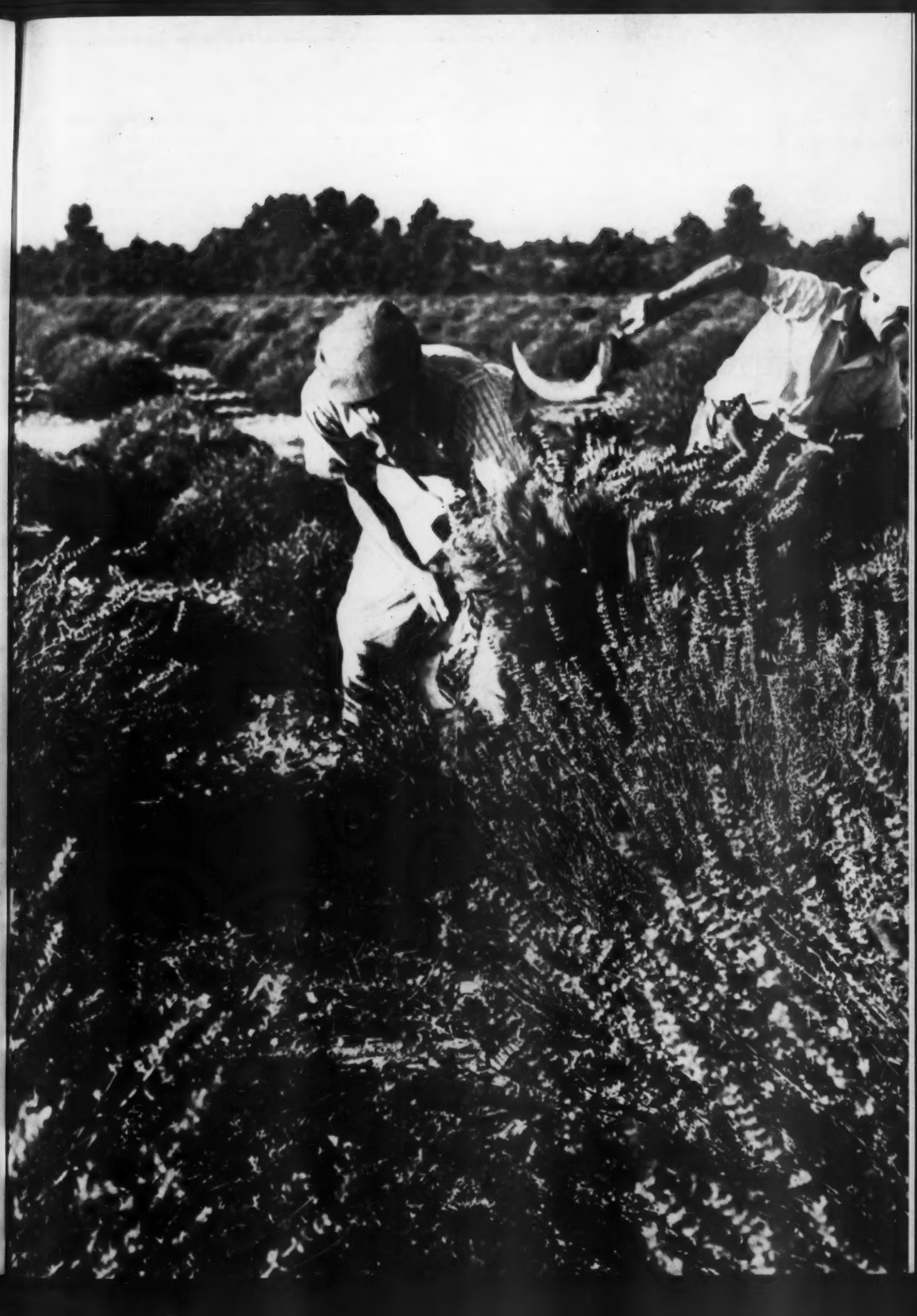
The number of factors to be considered in deciding the final objective may be small or large, but there will be two general classes. Those related to function are to be settled tentatively, first. In pharmaceuticals, therapeutic action is the function, and the amount of active ingredient usually determines the degree of action. In cosmetics, the function is usually an effect or action recognized by the consumer, and, if one or more ingredients are associated with that function, the relationship is almost never quantitative. Selection of the ingredients may be a process of deciding which offer the best combination of functionality, form, cost, compatibility, and processing; it may be that only one will answer.

The second class includes characteristics of form. These are occasionally secondary, are often equal in importance to functional factors, but almost never are they paramount. The form and the function must be a harmonious combination, particularly in cosmetics, while in many pharmaceutical products function alone is significant. When there is an established consumer preference for a particular form, only the most compelling motives would permit the choice of another form. An attempt to introduce what would normally be an oral medicament in a suppository form would find little favor in this country. Similarly, with the present acceptance of the liquid form of shampoo, a powder or impregnated pad form of shampoo offers little promise. In any case, novelty alone cannot justify an unusual form. A number of unusual package forms have added novelty without additional utility—witness the departures from dentifrices in collapsible tubes—and must be classified as abnormal.

When the functional ingredient and the form are established, the excipients and carriers in the vehicle must be selected. These must have specific functions and purposes in the complete formulation. Even a diluent must be regarded as governing the concentration of an active component, and a candidate for

(Continued on page 401)

Harvesting Lavandin in France . . . . ►
This hybrid of true lavender and spike lavender combines the finer odor of lavender with the hardiness and higher yield of spike. The stalks are cut with a sickle and quickly taken by cart to the distillery for immediate steam distillation. Because of lavandin's fresh notes, it is widely used in soaps, detergents, liquid cleaners, and hair sprays.



The following three articles were presented at the Symposium, The Scientist's Contribution to the Safe Use of Cosmetics, co-sponsored by the Committee on Cosmetics of the American Medical Association and the Section on Pharmacy of the American Association for the Advancement of Science, at the 127th Annual Meeting of the A.A.A.S., in New York City, December 29, 1960.

THE GOVERNMENT'S ROLE in the Control of Cosmetics

BY IRVIN KERLAN, M.D.
DIRECTOR, RESEARCH AND REFERENCE BRANCH,
BUREAU OF MEDICINE, FOOD AND DRUG ADMINISTRATION

With the enactment of the Federal Food, Drug, and Cosmetic Act in 1938, cosmetics, exclusive of soap, were brought under Federal control for the first time for the protection of consumers. The Act was designed, among other purposes, to prohibit the movement in interstate commerce of adulterated and misbranded cosmetics.

A cosmetic is defined in the Act as articles, including components of any such articles, intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, except soap shall not be included.

This legislation grew out of the clinical experiences that had been encountered in previous years. Certain eyelash dyes caused serious eye injury and even blindness. A depilatory that relied upon a toxic thallium salt for its effectiveness caused systemic poisoning. Certain hair dyes, bleach creams and a wide variety of cosmetics were attacked as health problems. Cosmetics were included in the 1938 law to deal with such health needs.

Requirements of the Law

Basically, the legal requirements dealing with cosmetics are fairly direct and uncomplicated. A minimum of information such as the name and address of the manufacturer, packer or distributor, and an accurate statement of the quantity of contents are the fundamental label requirements. A statement of ingredients is not required. A product that fails to comply may be proceeded against as misbranded.

As a health protection, the presence of any poisonous or deleterious substance that may render it injurious to users under the conditions of use as set forth in the labeling or under such conditions as are customary or usual makes a cosmetic adulterated, and therefore illegal to ship. There is a specific exemption for coal-tar hair dyes if the label bears a cautionary statement pointing out the need to conduct preliminary skin testing to determine irritant properties of the article for each person before use and with specific prohibition of use for dyeing the eyelashes or eyebrows.

With health protection the objective, adulteration of a cosmetic also covers the presence in it of any filthy, putrid, or decomposed substance; its being prepared or held under insanitary conditions; its being packaged in a container imparting poisonous or deleterious substance to it; or its containing an unsafe color additive.

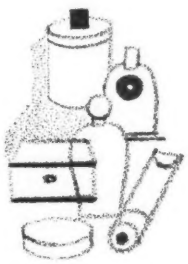
Legal Prohibitions

The Act provides for seizure by the Government of harmful, falsely labeled, or otherwise illegal products, and for prosecution of violators of the law. Enforcement arises through cosmetic factory inspections, collection and examination of interstate shipments, and instituting of legal action through the Federal courts when necessary. It must be kept in mind that advertising is the responsibility of the Federal Trade Commission, just as use of the mails is followed closely by the U. S. Post Office Department. Extravagant claims continue to be a significant enforcement problem for all three agencies,

since there are some opportunists who cannot resist the urge to capitalize improperly on new and fanciful ingredients and developments.

The irresponsible promoter makes exaggerated claims about some new ingredient, without regard to whether it will accomplish the benefits attributed to it. Since the burden of proof is on the Government, we must develop the necessary evidence to reach a sound decision to proceed, during which time the promoter rakes in the profits. He stops his chicanery only when we prove the claims are false or when the public becomes disillusioned and turns to some other product.

We still encounter occasional cosmetics that are supposed to provide miraculous effects because a little



turtle oil is present to promote skin rejuvenation, tighten sagging chin muscles, and restore a fresh, youthful glow to the aging throat and face. Recently we have encountered the use in cosmetics of chick embryo extract to regenerate new cells and prevent wrinkles; plankton, to feed the skin and serve as a decongestive; roasted and powdered hair as a hair grower. Horse blood serum, pig-skin extract, amniotic fluid, shark oil, and placental residue have been offered individually for skin rejuvenation. Royal jelly—the priceless gift of the queen bee—has been promoted for anything that is wrong in the skin or in any body system.

Scientific Methods

FDA has employed scientific methods to administer the laws it enforces and may be regarded as one of the first governmental agencies to do so. The safety of cosmetics for their intended use is measured by current and forward-looking methods of analysis that determine their composition and properties. This is a major activity engaged in by our analysts. Often their methods of analysis are adopted by the cosmetic industry.

The Food and Drug Administration is a relatively small governmental agency with a regulatory staff of less than 2,200 persons. It has grown substantially during the past few years. As most of you know, this agency is headed by the Commissioner of Food and Drugs and has five technical and administrative bureaus with headquarters in Washington and inspectional and analytical staffs in district offices in 17 principal cities, with an eighteenth to open next month. There are two scientific bureaus, the Bureau of Medicine and the Bureau of Physical and Biological Sciences. The latter is comprised of the Divisions of Cosmetics, Antibiotics, Food, Microbiology, Nutrition, Pharmacology, and Pharmaceutical Chemistry. In dealing with a cosmetic problem, a number of scientific units may become engaged. It is fair to add that we have given only minimum attention to cosmetics as a class because of a limited staff. However, the cosmetic laboratory staff is expected to be increased soon.

Dermal Toxicity

The skin, its appendages, and mucous membranes have a marked capacity to respond to materials applied to them. We recognize that there can be ready absorption with local effects (local toxicity), systemic effects (systemic toxicity), or both. The local effects are characterized as "irritations," a general term to identify essentially eczematous contact dermatitis, inflammation of the mucous membranes, and even corrosive damage. Skin irritation may arise from contact with substances that are primary irritants or from contact with substances capable of inducing sensitizations. We must not lose sight, too, of the fact that the substance can be both a primary irritant and an allergen.

Appraisal of Cosmetic Toxicity

Analytical methods are used for determining the composition of all regulated products; chemical analyses are made of cosmetics. In addition, considerable effort has gone into establishing methods for studying the physiologic effects of cosmetics in Food and Drug Administration laboratories. Dr. John Draize, Chief of the Skin Toxicity Branch of the Division of Pharmacology, has designed widely adopted methods for studying quantitatively the effects of products on the skin. In the study of primary irritation of the mucous membrane, the tests are designed to employ the specific mucosa to which the product is to be applied. I shall not attempt to present any of the experimental technics, but I would like to call attention to the section on "Dermal Toxicity" which appeared in the monograph, *Appraisal of the Safety of Chemicals in Foods, Drugs and Cosmetics*, published in 1959 by the Association of Food and Drug Officials of the United States.

In connection with the evaluation of the safety of

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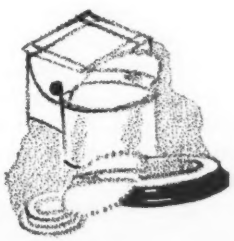

BIOLOGICAL RESEARCH and Cosmetic Development

BY WILLIAM MONTAGNA, Ph.D
PROFESSOR, DEPARTMENT OF BIOLOGY: BROWN UNIVERSITY

It is difficult to distinguish biological from medical research today. Their tools, their approach, their scope, and even their zeal are often identical. Thus, I do not separate biological research from medical research.

A sober reflection upon the contribution of the professional biologist to the cosmetic industry of today makes me realize that I can scarcely justify the prominent role that has been assigned to me in this program. Since I do not want to strain the truth, I shall use my specific assignment in my own way and talk about skin and some of its biological problems that are of common interest to us. Although we are both interested in skin, let us first be accurate. You are paid for your interest in skin, I am satisfying a childish curiosity about its various biological properties. Yet, whether the interest is accompanied by the desire to make money or by the desire to understand fundamental principles, we are apparently seeking the same things. The barriers that are constantly erected between so-called basic and practical research are often nonexistent and always arbitrary. Even if they existed, they would be of no consequence. The "practical" investigator should realize that isolation exists only in the minds of men; at the same time, the academic investigator should realize that, although the philosophy of his investigation may differ from that of the industrial scientist, their goals and their methods are often identical. The academician has much to learn from industry-oriented scientists; the industrial scientist cannot afford the luxury of being leisurely. He *must* produce and he cannot be wrong too often.

Cosmetic industries survive and thrive on the unpredictability of human wants. Think about some of these vagaries and compulsions: We always want things other than what we have. Those who have curly hair strive to straighten it; those with straight hair must curl it. It is improper for women to allow hair to grow on the legs or the axilla, even though it may grow lavishly there. At the same time, it is considered effeminate for a man to shave most body hair, even though he has a better crop than women do. High skin color tones must be softened or masked, dull ones must be accentuated. The commercialization of certain products said to prevent the expression of body odors has reached the ultimate hysterical pitch. Nothing remains to be said except variations on a profoundly vulgar theme. Apparently, our skin is ugly, with evil potentials ready to offend the minute one's guard is down. We seem to be headed toward the attainment of an aseptic society. The soap and deodorant advertisements tell us lurid tales of the lurking microflora over the entire body, waiting to attack with offensive emanations. Granting that the manufacturers of the neutralizers of the host of bacteria over the body have the privilege of preaching the truth as they see it, would it not be edifying if they knew the truth?

If one reads through Rothman's book[1] and that of Hurley and Shelley,[2] he will see that axillary secretion, when sterile, is odorless, but when attacked by certain microorganisms becomes fetid. This is the extent of our information. No fetid emanations result from a degradation of eccrine sweat. Those of us who have an honest interest in the biological phenomenon

of male baldness have to listen to endless inanities. The phenomenon is regarded as a disease. We are reminded that if we found preventive measures, we would become inordinately rich. Although the biological implications of such knowledge would be enormous, the practical significance of maintaining a healthy crop of hair on the scalp of man would be of no great consequence. If, through a miracle, male baldness could be prevented, men would begin to cast covetous glances at the bald dome.

Although to survive, cosmetic and toilet goods industries must still capitalize upon the vanity of man, they are gradually emerging from the arbitrary compounding of poultices, decoctions, ointments, powders, and the like, and are compelled to consider the biological properties of skin, lest they do grave damage to skin. There is still too much giddy talk about

hormones, embryonic extracts, nectars, ambrosias, and witch's brews; these fantasies, though still uttered with God-like authority by the advertisers, will soon have to give way to some facts, if the industry is to achieve the high level of respectability that it must. It is surprising how far behind the wool research industries the cosmetic industry is. The wool industries over the world maintain superlative research programs of such breadth that they have contributed enormously to our knowledge of the biology of skin. Let us hope that the cosmetic industry is only one step removed from cosmetic dermatology, and that each new cosmetic product compounded will be tailored to the biological properties and needs of skin. Skin should either be indifferent to a cosmetic agent, or it should benefit from its presence.

With these premises in mind, it is easier to talk about the contributions that the biologist has made, or will make, to the industry. An industry so inseparable from the biological scientist should actively participate in and assist in his researches, even if the particular research seems to be of little apparent value at the time. Remember that neither of us has the vision always to know what is valuable and what is not, and the ever-increasing catalog of the attributes of skin should be indispensable to a conscientious cosmetic industry.

Few appreciate the fact that skin is enormously different from one part of the body to another. The different surface areas of the body are covered with skin having properties that are peculiar to each area. The scalp, the face, the axilla, the abdomen, and so on, are as different from each other as the skin of different species would be. Furthermore, even the same cutaneous organs have different properties in various areas of the body. The sweat glands of the palms and soles have properties anatomically and physiologically different from those elsewhere. Androgenic hormones, which in genetically select men are the prime incitant of baldness, enhance the growth of the hair elsewhere on the body. The size and the activity of the sebaceous glands over the entire body respond to androgenic stimulation, but only those of the face, forehead, neck, shoulders, and anterior chest are delicately sensitive to it and prone to acne. The sebaceous glands of the bald male scalp are gigantic and enormously active, but they rarely become sites of acne lesions. The thickness and the properties of the stratum corneum over the different parts of the body vary and must have different properties of penetrability. Very few have looked at the surface sculpturing of the intact epidermis. Studies just under way in two laboratories are beginning to show that the topography of the intact surface of the body varies greatly from place to place.

There are striking differences in the amount of vascularity of the skin from the various parts of the body. The details of these differences are not all known yet. Perhaps the lymphatic drainage is the least known fact about skin; surely this should be of great importance to the cosmetologist.

Anyone who is interested in applying various substances to skin daily should take into account the rate of growth and differentiation, and the chemistry of the surface of the skin. About the last point, the chemistry of the keratin and the lipids on the surface of the skin, I will say nothing other than that great progress is being made. Since 1946, W. S. Bullough, a zoologist in England, has concerned himself primarily with the problem of mitosis in the epidermis. He has found that epidermal mitotic activity takes place in diurnal rhythmic cycles, whereas that of the cells of the matrix of hair follicles proceeds throughout the day or night. Epidermal mitosis requires aerobic conditions, the mitotic rate being dependent upon the available energy supply. The energy needed by a cell to divide must be mobilized and stored before that division can begin. All inhibitors of glycolysis, respiration, and phosphorylation prevent mitosis in the epidermal cells *in vivo* or *in vitro*. These and other details pertaining to proliferation and differentiation of cutaneous structures are a part of the essential information that the cosmetic chemist must have, lest he cause grave damage to the skin.

In addition to a knowledge of the anatomical and

physiological characteristics of skin and its requirements for remaining healthy, the cosmetic chemist should be fully aware of the enzyme systems of the skin. This information must come from both the chemist and the histochemist, since it is not enough to know that skin contains various amounts of certain enzymes. Skin is a heterogeneous tissue composed of different organs, the biological properties and requirements of which are enormously different. The biochemist has accumulated an interesting list of enzymes that are found in the skin. Such a list, however, rarely takes into account the regional differences that exist in skin. These are analyses of pooled skin and, in spite of their quantitative character, can only be accepted on a qualitative basis. Histochem-

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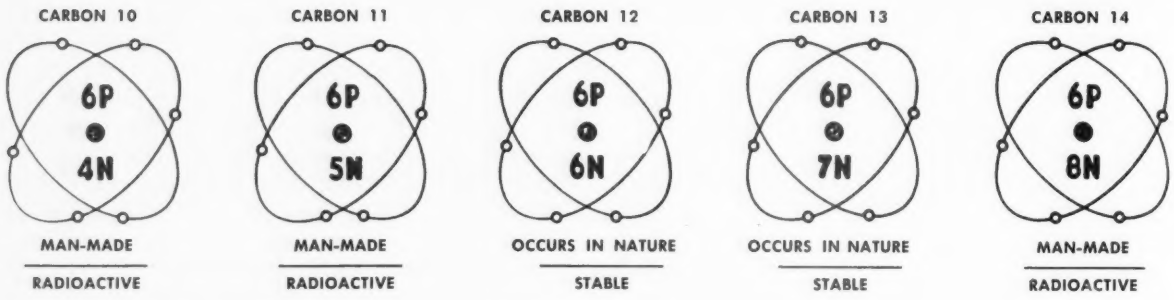


Figure 1. Isotopes are atoms of an element distinguishable by their weight. The only difference between the isotopes of an element is in mass, and each isotope of a given element contains the same number of protons, thus establishing its chemical identity and its reactivity.

RADIOISOTOPES in Cosmetic Research

BY WILLIAM F. BOUSQUET, Ph.D.
ASSISTANT PROFESSOR, BIONUCLEONICS DEPARTMENT, PURDUE UNIVERSITY

To a degree perhaps unmatched in other industries, the marketing of a cosmetic product requires a judicious blending of the sciences, the arts, and the world of business. I shall deal exclusively with the first area, that of the sciences. More specifically, I shall be concerned with the potential applications of a new technology to cosmetic research and manufacturing operations. The cosmetic industry has technical and research problems not unlike those encountered in the food and pharmaceutical industries, areas that are making extensive use of radioisotopes and ionizing radiation. I should like to survey the general applications of radioisotopes in research and in industrial process control. It is not unreasonable to assume that isotope techniques and procedures will find broad application in cosmetic research and technology.

Properties of Radioactive Isotopes

Radioisotopes differ from stable isotopes in that they possess excess energy in the nucleus of the atom. Radioisotopes both exist in nature and can be man-made in nuclear reactors or through the use of particle accelerators. There are presently about 1200 known isotopes, some 300 of these being stable and existing in nature. Nine hundred radioactive isotopes have been identified and studied; 60 of these occur in nature and the remainder have been artificially produced.

As a radioactive species attempts to attain a more stable state, it loses its excess energy in the form of particles or rays known as "ionizing radiation." This radiation is of three types, alpha particles, beta particles, and gamma rays, which are characterized chiefly by their differences in penetrating power. When all of the excess energy has been lost, the species returns to the stable state and is no longer radioactive. The half-life of a radioelement is the time taken for one-half of its radiation to be emitted. Half-life values range from a fraction of a second to millions of years. Thus the type of radiation emitted by the radioisotope, the energy of the radiation, and the half-life are characteristic of each species.

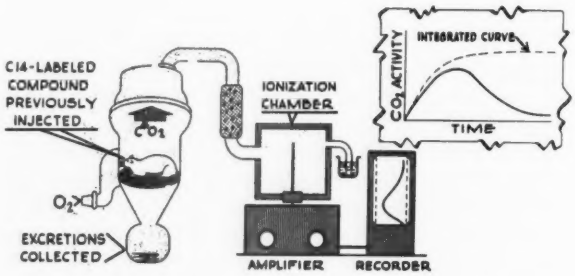


Figure 2. Metabolic studies with radioisotopes—here showing continuous metabolic measurement using carbon 14 as tracer. Note the continuous rate of breakdown to CO_2; the rapid metabolism of most compounds; and the differences due either to drug action or to disease.

Man's senses are of no value in detecting the presence of ionizing radiation. Hence, sensitive electronic equipment has been developed and is available for the qualitative and quantitative assay of radioactivity. The basic principle of all such equipment is that ionizing radiation interacts with a sensitive element and produces an electrical signal which may be recorded quantitatively, or which may be used in process control operations.

The physical nature of the isotopes of an element is shown in FIGURE 1.

Basis For Radioisotope Utilization

The usefulness of radioisotopes in research and industry is founded on three basic principles.

1. *Radiation affects materials.* This principle is employed in such applications as food and drug sterilization, therapy with radioisotopes, and chemical reaction induction. This property is primarily dependent upon the ability of ionizing radiation to interact chemically with matter.

2. *Materials affect radiation.* A beam of radiation when passing through matter gives up its energy and is reduced in intensity as a function of material thickness and density. This principle is used in such industrial applications as radiography, thickness gaging, and liquid level measurement.

3. *Radiation traces material.* Radioisotopes may be used to trace the pathways of complex biological and

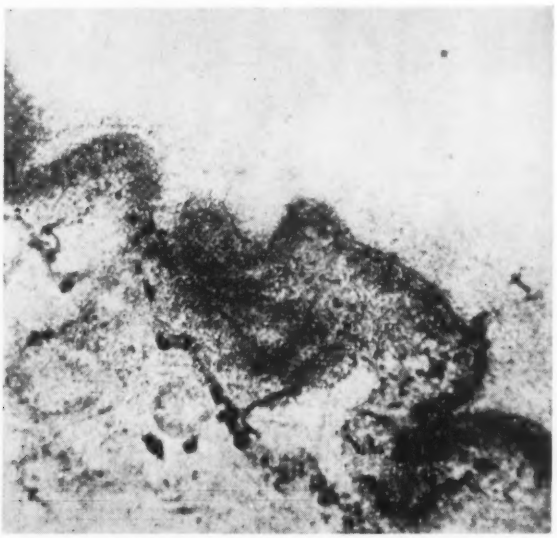


Figure 3. The autoradiograph technique in a study of the penetration of iodide ion into frog skin. This autoradiograph of frog membrane was obtained using I^{131} as the radioelement. The areas of iodine localization show up as the darker areas of the photograph. X100.

chemical systems. In research, this is surely the most important application of the radioelements. There are no inherent limitations on the nature of the material to be followed; the so-called tracer technique has been applied with equal success to metabolic studies in animals and man, penetration of cosmetic ingredients through the skin, and in following the movement of oil through pipelines.

The basic advantages of the tracer techniques are three in number, the first of which is the great sensitivity of the method. Radioisotopes can be measured in amounts less than 10^{-12} gm. with high accuracy and precision, whereas most common analytical procedures are far extended at the 10^{-6} gm. level. Secondly, the tracer method is highly specific, that is, there exists no doubt concerning the material being measured; this serves to remove the necessity for blank determinations, and interference from chemically related materials is of no consequence. The third advantage of the tracer procedure is that it may be applied to physical, chemical, and biological systems that are highly complex in nature.

The areas of usefulness of radioisotopes as research tools are well documented in the scientific literature.[1–4]

Current Status of Radioisotopes Use in Industry

The general availability of radioisotopes to industry for research and production uses has covered a span of but 13 years to date. Much of the early work on the applications of the radioelements as tracer substances in metabolic studies and product evaluation has been carried out in governmental and university laboratories. It is only since 1951 or thereabouts that industrial organizations have set up isotope research groups that function as an arm of the

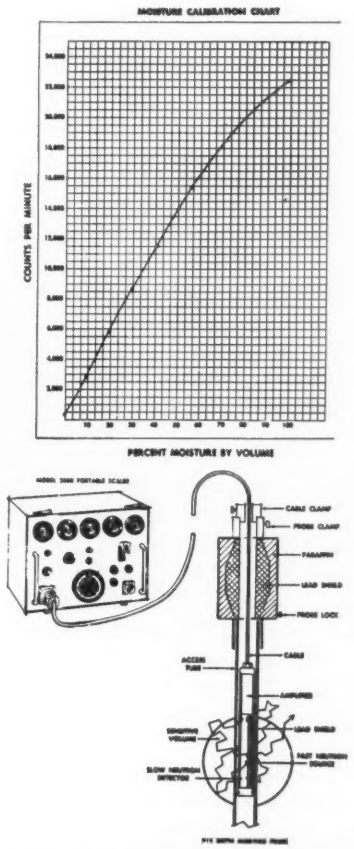


Figure 4. The nuclear moisture gage and a calibration curve obtained in making moisture measurements by the nuclear method. The probe unit of this device contains a source of neutrons. This method is advantageous as an *in situ* measurement adaptable to production line use.

company research team. Developments in this area have been spectacular over the past seven years. Many companies still lack a full appreciation of the contributions that radioisotope technology can play in their own operations.

The so-called heavy industries have made great strides in the application of nuclear technology for process and production control purposes. At the other end of the scale, tracer uses of radioisotopes have found extremely broad application in industries dependent upon biological research, for example, the

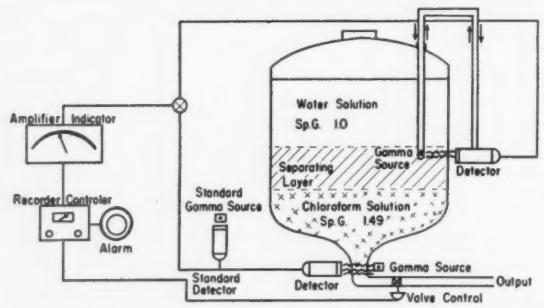


Figure 5. Radioactive detection of liquid-liquid interface and completeness of separation. Its advantages are elimination of human element in determining separation completion; an alarm system freeing operator; saving of expensive product; and having automatic features.

pharmaceutical industry, and more recently the food industry.

The over-all potential, however, has barely been explored at the present time. The reasons most frequently mentioned by industrial personnel to explain this fact are first, a lack of awareness of the value of nuclear technology, and secondly a lack of scientific personnel trained in the handling and use of radioactive materials. It is apparent, then, that a substantial educational effort remains to be accomplished.

Savings to Industry through Isotope Use

The Atomic Energy Commission has long been active in promoting the peaceful applications of nuclear technology. A portion of this effort has been directed through the Commission's Office of Isotopes Development toward providing an awareness in industry of the vast potential of isotopes in research and process control.

Tracer uses of the radioelements frequently lead to savings in research time, usually by allowing technical personnel to perform a wider range of duties. It is difficult to state an exact dollar amount of such savings currently being realized throughout United States industry.

The use of isotopes as production and process control tools leads to measurable product and scrap savings. Estimates of such savings approach 500 million dollars annually. A recent, well-documented report shows 39.2 million dollars saved annually through isotope applications in selected industries.[5] Former AEC Commissioner Willard F. Libby predicts that industrial applications of nuclear techniques will lead to savings measured in billions of dollars within the current decade.[6] The fruits of this new technology are promising indeed.

Specific Areas of Isotope Application In the Cosmetic Industry

It is convenient to break down and classify the applications of radioisotopes in the cosmetic industry under two main headings: (1) applications to cosmetic research and product development; and (2) applications to production, process control, and packaging operations in the industry.

It is the first area mentioned which is of prime importance here. I want to point out certain research efforts wherein radioisotope methods have proved to have particular merit. Additionally, there has recently appeared an excellent review of isotope applications in the detergent and cosmetic fields by Nelson,[7] and the reader is referred to this source for further information.

Radioisotope methods have proved useful to the

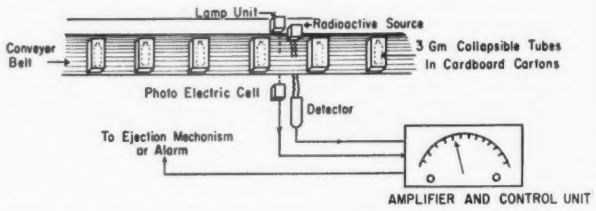


Figure 6. Package monitoring with radioisotopes to detect underfilled and empty containers. Its advantages are that it is adaptable to containers too light to be otherwise checked, to overfill detection, and to high-speed inspection of solid, liquid, or paste forms (200/-min.); it is more rapid than check weighing; the monitor operates only when light beam is interrupted; it warns of failure of detector; and one operation checks both the carton content and the container fill.

cosmetic scientists in studies involving transfer of materials through the skin, and in phase transfer studies such as would be of interest in product formulation. Transfers of this type can be accurately measured at minute material concentrations under diverse experimental conditions. The sensitivity and simplicity of experimental technique afforded by radioisotopes in studies of this type are unsurpassed.

Metabolic Studies. It is continually of interest to the cosmetic scientists to know precisely the rate and degree of absorption of ingredients from his formulation through the skin and into the general circulation. In addition, there are problems of measuring blood levels and excretion rates, and the identification of metabolic products from cosmetic and dermatological preparations. Use of the tracer technique provides a means of rapid, accurate, and precise definition in the areas mentioned.

The Food Additives Amendment has generated a

(Continued on page 376)

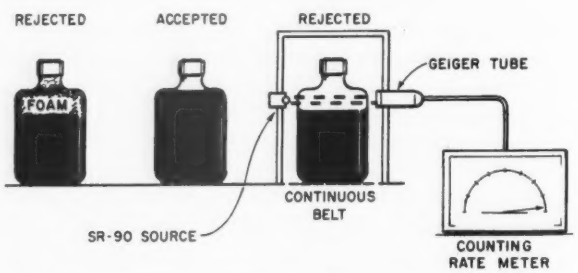
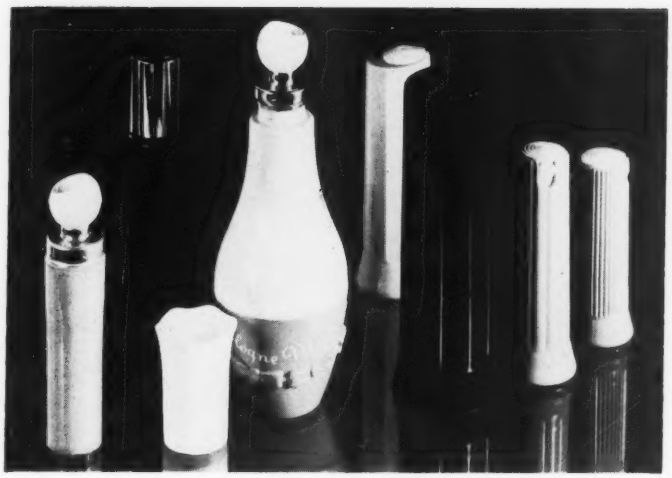


Figure 7. Another monitoring system that simplifies container fill monitoring and control is the use of radioactive strontium (Sr 90) for indicating liquid height. Its advantages are that it is applicable to opaque substances, is adjustable for different-sized bottles, is adaptable to automatic rejection, and provides a final packaging check.

Packaging and Selling



Delrin, a linear, thermoplastic polymer developed by Du Pont, was introduced commercially in January 1960. During its first year, this acetal resin has already been used in more than 500 different industrial products in the United States, and in 200 more abroad.

Until now, the plastic has found use largely as a metal replacement, especially for brass and zinc. However, among the most notable products already in use are an aerosol container, and, although its uses as a packaging material have scarcely been assayed, it has replaced brass in an aerosol valve component, in a cam for an electrically operated aerosol, in an aerosol valve slide disc, and as a perfume dispenser. One aerosol now on the market is a spin-welded, two-color container for a cologne mist [DCI 87 (6): 779] by Avon.

Today 300 end users, as well as 250 processors, are working with acetal resin. The highly crystalline, high-melting polymer has strength, stiffness, durability, high temperature behavior, and solvent resistance. It is rigid but not brittle, is both tough and resilient, and it retains these properties to a high degree under adverse conditions of temperature and humidity, as well as during stress. Although heavier than most other plastics, it is about 85 per cent lighter than brass, 80 per cent lighter than zinc and iron, 45 per cent lighter than aluminum, and more than 20 per cent lighter than magnesium.

Delrin can be fabricated by conventional methods on standard plastics processing equipment at mass production rates, can be machined more easily than free-cutting brass, and can be painted, metalized, and imprinted. Two compositions are available: Delrin 500 for injection molding, Delrin 150 for extrusion and blow molding. Among sheet-forming techniques, vacuum, pressure, and matched-mold forming have been accomplished experimentally. The product is available in 14 standard colors and 42 service colors. Custom colors can also be manufactured.

Two other characteristics important for packaging are the product's warmth to the touch, and that it is unaffected by colognes and body oils.

So far, no toxicity has been found, and Delrin has been approved by the National Sanitation Foundation for use in potable-water piping. However, since it is made from formaldehyde, for which the FDA has set no formal tolerance limits, Du Pont recommends that applications involving drugs be discussed with them, so that the molder or end user can better decide if FDA approval is required and whether to petition for such approval.

Finally, Delrin acetal resin provides savings: it is less expensive than brass and die casting zinc alloys; it is lighter than most metals, which reduces freight costs; it requires relatively little finishing; and its color is intrinsic. Its introductory price was 95 cents a pound; the price is now 65 cents a pound. •

Today's loveliest container . . .

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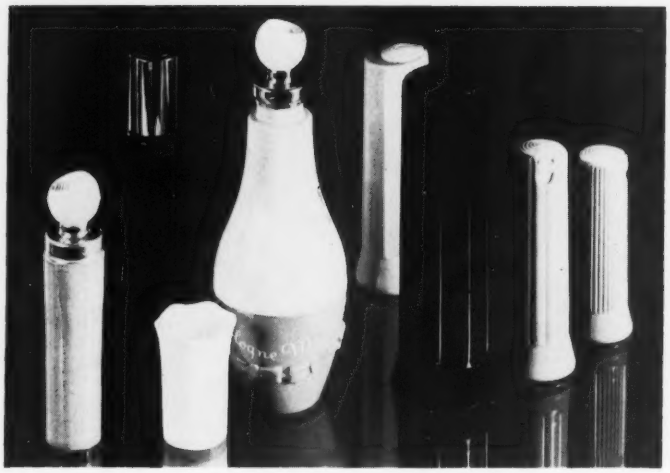
Women love this compact, lightweight aerosol. Fashioned in one piece from gleaming aluminum, Peerasol containers can be handsomely decorated in two, three or four colors over a base coat. Precise valve-cup fit is obtained by a patented process in manufacture. This means leak-proof containers, higher pressures and a high standard of quality control.

Peerasol is the smart container for perfumes, colognes, drug or pharmaceutical products. Write or call for complete information.

*PEERASOL is a tradename of the Peerless Tube Company for this one-piece, seamless aerosol with the patented lip for tight valve-cup fit.

PEERLESS TUBE COMPANY, Bloomfield, New Jersey

Packaging and Selling



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PEERLESS TUBE COMPANY, Bloomfield, New Jersey

WHY PLASTICS?

Probably there are as many different ways of determining the packaging for drugs and cosmetics as there are drug and cosmetic companies. Even so, five fundamental approaches, with variations, should cover most of them. These categories indicate not only the basic production procedure of a company, that is, the source of any product to be packaged, but also the lines of responsibility for packaging.

Packaging follows the conception and development of drug products for the most part, although a new dosage form might be called a package designer's province—say a nasal spray, rather than drops. Even here, however, the product has priority. But there is greater latitude among cosmetic manufacturers, where a package and its product may originate not only (1) in the development department but also with (2) the designer, (3) the cosmetic chemist, (4) the purchasing agent, or (5) the container engineer or supplier.

With such a span of responsibility, a knowledge of packaging materials and their possibilities is required of a wide variety of individuals: designers, chemists, production engineers, those in development, and, of course, purchasers and suppliers. Usually the greatest responsibility for such information rests with one or two of these specialists or departments in any given company, but a discussion of packaging materials must take them all into account.

In future issues, we intend to do just that in presenting the usefulness of plastics in packaging—for closures, bottles, tubes, jars, compacts, dispensers, and films.

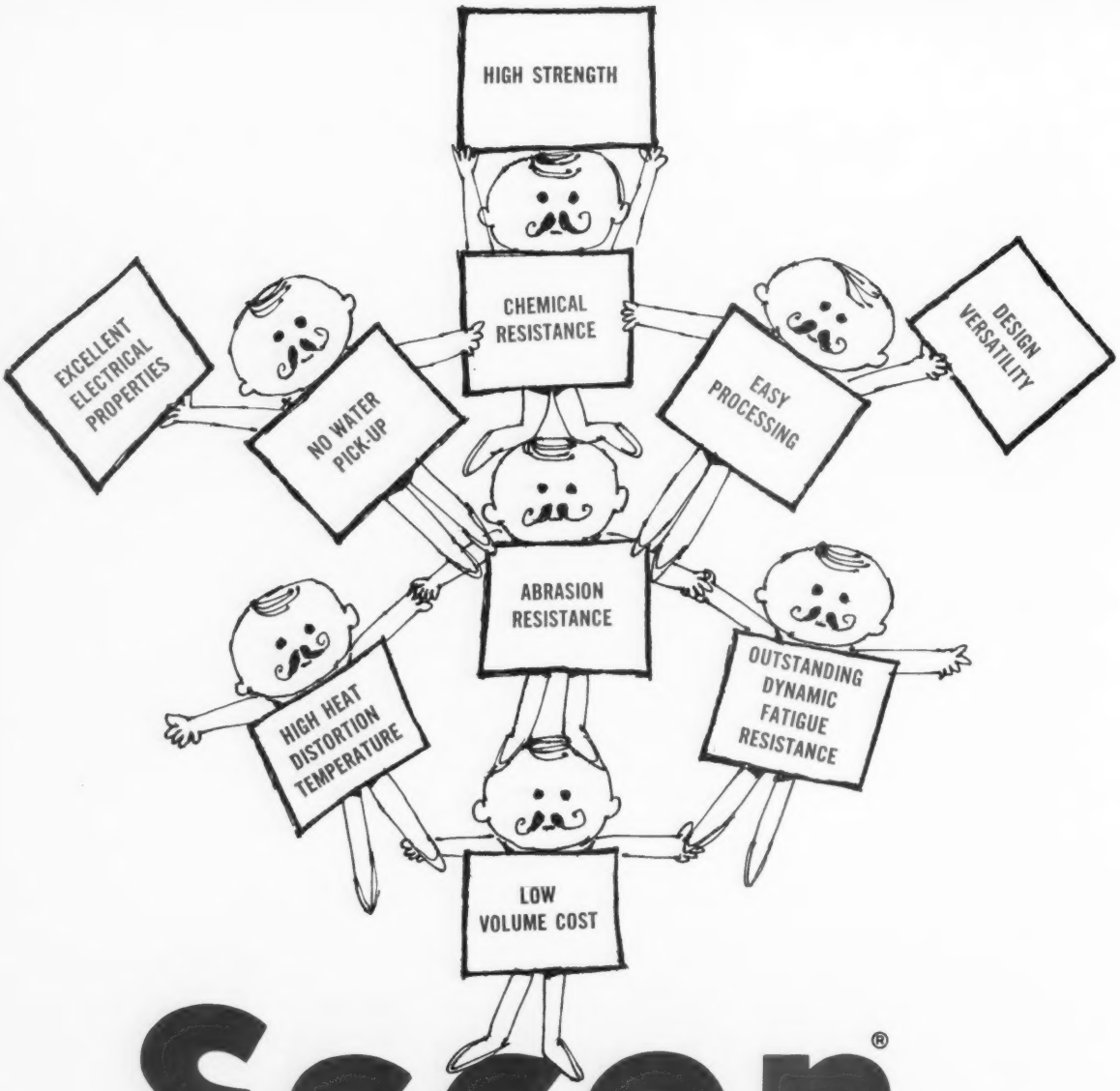
But, our title deserves an immediate answer, however brief.

Savings on many costs is a primary reason for using plastics, not the least of which are lowered freight costs and less breakage. The cost of plastics as a basic material has decreased ever since plastics first came into use, and there seems every likelihood that it will continue, especially as their use continues to increase. The consumer's preference for plastics when they are most convenient to use is another reason for packaging with plastics, although many products demand metal or glass containers instead. Plastics also allow great freedom in design.

On the other side, plastics present chemical problems because they are not inert, as is glass; filling problems, especially for vacuum filling; and other such manufacturing and production problems as that of crimping tubes, which is far easier on metal. Moreover, the proliferation of plastics with their widely varied characteristics makes for a bewildering number of choices—not to mention tests, once a choice has been made. This promises to continue, rather than diminish, which will probably be a blessing, albeit disguised at present.

There may well be One Perfect Packaging Material for any single product, but no one can seriously believe any longer that one material is best for all products. And, even as radio refused to die when television appeared, glass and metal will not be superseded by plastics. The same tendency found in communication probably applies to packaging materials as well: A person exposed to one medium of communication is most likely to be exposed to several—more magazines are read in homes with television than in homes without it. Plastics have not simply cut into the use of glass and metal, they have actually produced more packaging. Think of the multitudes of products that now come individually wrapped but used to be transferred, unwrapped, from a large package to a small one when a sale was made.

The one serious packaging problem is that of determining which material to use for what product, to bring about the best all-round results. In the expanding field of plastics there are no pat answers; there are only the experimental results of users, each adding to a growing body of knowledge of the physical properties of plastics and their performance characteristics for specific products. These we plan to report. *G.M.S.*



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A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY PLASTICS

Packaging and Selling

Oh the pity of it! And. How have the mighty fallen! These remarks are inspired by a mailing piece from Macy's that appeared on our desk this morning.

Here is what you can buy at Macy's in the next few days:

Lucien Lelong dusting powder, sale, 59 cents, original list, $1.50;

King's Men Cologne, sale. 3 for 99 cents, original list, $1.10 each;

Seaforth men's toiletries (lotion. shave balm, spray deodorants), sale, 3 for 99 cents, original list, 69 to 79 cents, each.

Just think, it was not too long ago, toward the end of the World War II, when Al McKelly, a young man come East, appeared with the Seaforth men's line. It took Al 18 months to build sales volume a little above $800,000, at which time he sold this dynamically expanding company to one of the major proprietary companies who were then obsessed with the dream of building a cosmetic empire.

Seaforth did reach two and a half million, at which time it was losing $400,000. It is the literal truth that Seaforth has never been the same since Al McKelly sold it, even though two major. highly successful mass merchandisers have owned it.

The history of King's Men has been very similar, as has that of Sportsmen. Courtley, the fourth of this great quartet which, established men's toiletries in the department store field and built a volume for this branch of the industry, even 15 years ago, of more than $40,000,000 for these stores, has completely disappeared from sight, so far as we know.

The men's field has been a dynamically growing field with respect to consumer wants. So far as manufacturers go, with the exception of two or three large successful enterprises, it has been a business of little efforts by a multitude of companies, no one of which has attained any noticeable identity with the public or any real standing or prestige with the stores.

It has also been the branch of the cosmetic industry that has ranked second to perfumes as the area of the greatest number of failures in the entire cosmetic business.

Jesse G. Bell, Jesse A. Bell, and Bonne Bell, together with Bonne Bell Cosmetics executives R. W. Gould, production manager, R. W. Middendorf, sales manager, and R. E. Williams, advertising manager, appeared in a two-page spread in four colors in a recent issue of *Time*. This was an advertisement of Dale Carnegie, who has apparently graduated all of these folks in his course in public speaking.

We congratulate Jesse Bell and the staff for this recognition in an important national magazine, as well as for the extremely fine photographs which appeared in this ad. We have known Mr. Bell, the founder of this company, for a good many years, and we know he has a right to be proud of his company, the company's record, his son and daughter, and his associates.

According to a recent survey, there has been a substantial increase of men's toiletries sales in supermarkets during the last year.

This is partly because, as supermarkets report, a larger proportion of men are now joining in family shopping, particularly during the peak periods of Friday evening and Saturday.

It is also true because supermarkets generally have been expanding their health and beauty department and have found it profitable to give greater space to men's products.

Another factor is that some of the better names have entered the supermarket, providing a more substantial display in this field.

Some of the names mentioned were Shulton, Mennen, Wild Root, Swave, Vasoline, and Lentheric.

An interesting comment by a number of store owners is that men are purchasing women's items, such as hair coloring preparations, creams, and lotions.

In all stores, men's deodorants have been showing an accelerated sales growth.

During this last year a considerable number of supermarkets made a drive for Christmas gifts of perfumes and cosmetics. Some stores spent quite a bit of money, rearranged department displays and, in fact, got quite a bit of aid in advertising and promotion from certain manufacturers.

As far as we have heard, the record of success in establishing a cosmetic and perfume gift position for Christmas was extremely spotty. A few stores did very well. Quite a number were satisfied, but at least half of the stores expressed disappointment in one way or another.

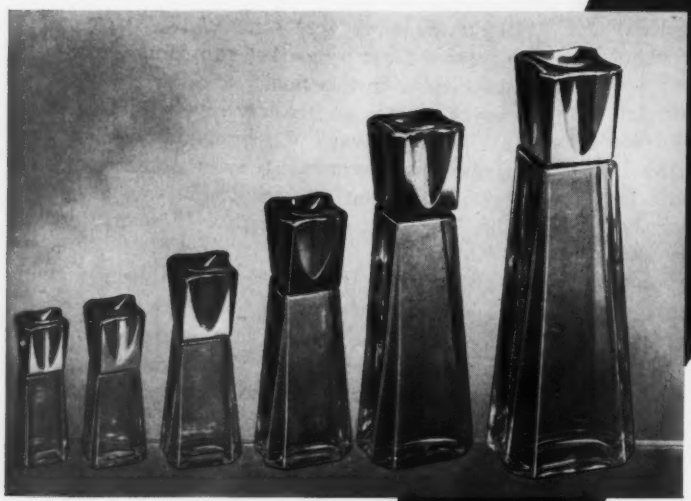
One of the big obstacles for the supermarket in developing Christmas business, in addition to the unhappy association of the food store environment, is the fact that they are ill equipped to carry this inventory and handle a return goods situation. This

presenting Richford's new

Ambassador

now available with the beautiful Futura Cap in brilliant Goldcote or other finishes

Sizes available: 1½ dram, 2 dram, 1/2 oz., 1 oz., 2 oz., 4 oz.



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means that they have tried to establish their Christmas business on the basis of packages that can later be broken up for regular shelf stock.

According to the Department of Commerce, in 1959 the expenditures for personal matters, including travel, clothing, education, religion, welfare, cosmetics, and the like, rose to 15.5 cents from 14.8 cents in 1955.

The Federal Trade Commission has just published a leaflet, "Guides Against Deceptive Pricing."

These guides have been adapted by the FTC for its staff in the evaluation of pricing representatives in advertising.

While not all-inclusive, here is what the FTC calls "the foremost of these principles."

1. Advertisements must be considered in their entirety and as they would be read by those to whom they appeal.
2. Advertisements as a whole may be completely misleading, although every sentence separately considered is literally true. This may be because things are omitted that should be said, or because advertisements are composed or purposely printed in such a way as to mislead.
3. Advertisements are not intended to be carefully dissected with a dictionary at hand, but rather to produce an impression upon prospective purchasers.
4. Whether or not the advertiser knows the representations to be false, the deception of purchasers and the diversion of trade from competitors is the same.
5. A deliberate effort to deceive is not necessary to make out a case of using unfair methods of competition or unfair or deceptive acts or practices within the prohibition of the statute.
6. Laws are made to protect the trusting as well as the suspicious.
7. Pricing representations, however made, which are ambiguous will be read favorably to the accomplishment of the purpose of the Federal Trade Commission Act, as amended, which is to prevent the making of claims which have the tendency and capacity to mislead.

Plastic foams are expected to be one of the big things in packaging. This branch of the plastic industry seems ready to go into boom production because of the unlimited uses of this extremely interesting material.

This familiar plastic is "foamed" by air, a process described as very like that of an aerosol foaming a shaving cream. The plastic foam is light in weight, resists a great many chemicals, is a good insulator, and can be easily handled for special jobs. Most of all, such foams offer superb protection to a product because of resistence to blows or pressure.

The plastic foam is bound to find increasing application in our field as a nesting protection for glass bottles.

The American Rack Merchandisers Institute has just completed its Tenth Anniversary Convention. In reading the report of this convention, we discovered a variety of very interesting points.

For instance, concerning nonfood merchandise: "Since constant introduction of new items continually stimulates shopper interest, Service Distributors will also discuss merchandise rotation. Steps in this direction will prevent consumer apathy sometimes caused by static displays. ARMI members will also focus on new lines for existing non-food departments, and the installation of altogether new departments."

Uneasy lies the product on a supermarket shelf! We draw two conclusions from this quote. One, it is a constant bitter struggle to develop sufficient consumer purchasing from the rack merchandiser's rack to keep a product on display. Second, even when a product is doing a good job, this turbulent pressure constantly to stimulate the customer to buy something means that good products are going to be pushed off the shelf just for the brief stimulation of a new, and perhaps shortlived, product.

The folks in the Institute are developing a number of services for direct consultation with retailers and manufacturers. Anyone in this fast-moving stream of distribution will undoubtedly find substantial, highly valuable marketing and packaging information.

The ARMI is a national trade association of service distributors and manufacturers of housewares, hardware, and related nonfood items sold in supermarkets. Membership consists of 53 service distributors, operating 147 distribution centers throughout the United States and Canada. Service distributors supply nonfood items to more than 20,000 chain and independent supermarkets. Associate membership is now held by more than 500 manufacturers who are suppliers of nonfood items to the service distributors of "rack jobbers."

According to the Institute, the following service is rendered by the rack jobber:

"The Service Distributor, by supplying selected and nationally tested nonfood items, relieves the retailer of expenses incurred in buying, warehousing, delivering and displaying these items. The Service Distributor protects the retailer from losses due to mark-downs, over-stocks and unsaleable items by replacing these items with merchandise that 'moves' fast. Retailers receive a constant, dependable mark-up on all goods at a guaranteed profit and are spared the expense of carrying an inventory of nonfood items. The seasoned experience of Service Distributors assures of maximum net profit for shelf space devoted to housewares, toys, hardware, soft goods, phonograph records, pet supplies and gardening supplies."

According to the report, "Non-food sales of about 3 billion dollars annually account for 5 per cent of U. S. grocery sales volume. Significantly, nonfood sales return an average gross profit of 8.3 per cent,

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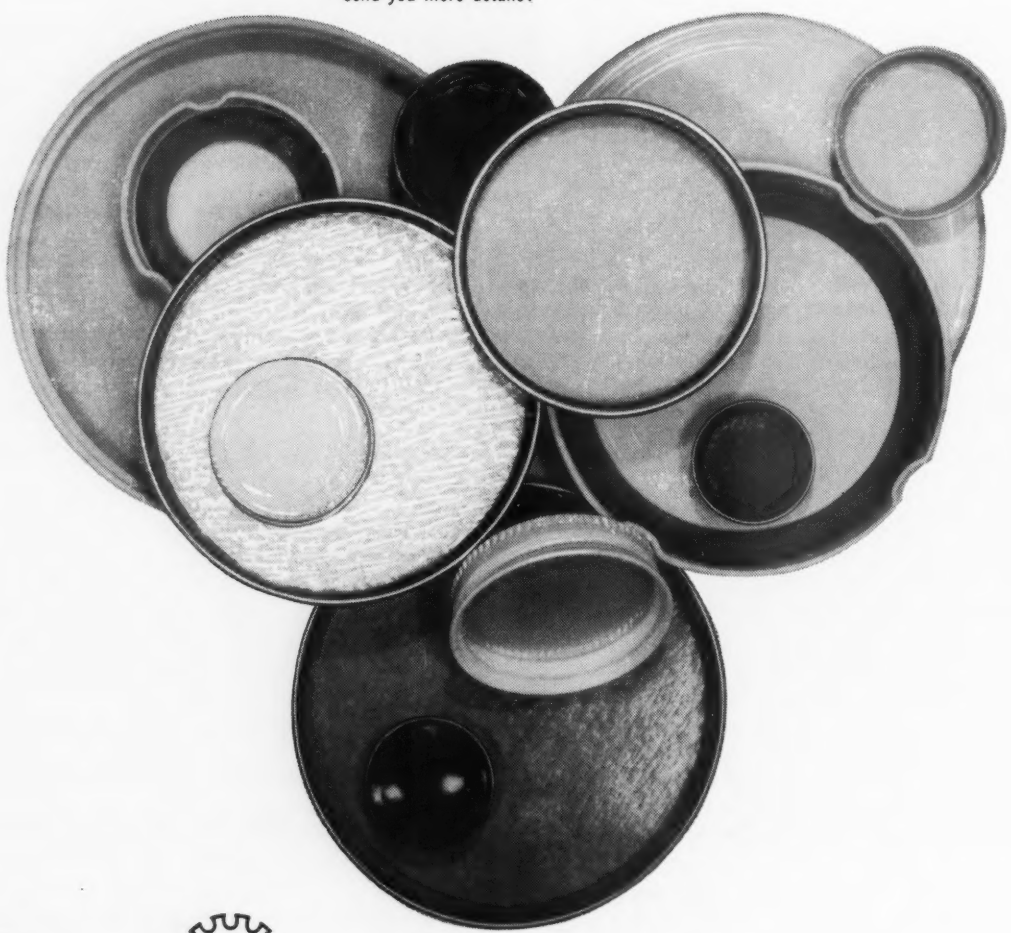

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far greater than on foods."

Membership service includes counsel and advice on product development, impulse type packaging, point-of-sale material, displays and merchandising problems peculiar to the self-service supermarket.

Glass container manufacturers, who have been told to expect quite a substantial increase in sales in each branch of our industry, are apt to run into some production and shipping problems of a new kind during the next year.

For instance, there is quite a controversy going on in the liquor industry about increasing the number of permissible bottle sizes. Right now, according to regulations, the liquor distiller has a practically unlimited scope in the shape and design of a bottle, but he is limited to eight bottles of eight different capacities.

Some of the big distillers, including Schenley, now say that the same packaging advantages should be granted to distributors of liquor that are open to other industries. The proponents of this theory want the limits removed on the size of liquor bottles, to allow at least the following sizes: one-third, one-sixth, one-twelfth and one-twentieth of a gallon. However, many people in the liquor industry are fighting the prospect of a host of new competitive sizes in bottles. Many of the opponents are among the smaller distillers.

Moving in an opposite direction, Chas. Pfizer, it is reported, is revamping its line of drug bottles for Pfizer Labs. and J. B. Roerig, to eliminate odd sizes. The standardization program will reduce the number of bottle styles from 33 to 13. The old bottles will be eliminated as existing inventories are depleted.

In this fantastic age of research, the things to come are arriving so fast that we never have time for astonishment. Take, for instance, the new edible cherry which is said to "look and taste better than the real thing." These wonderful cherries, headed for the supermarket from the Sunshine Packing Co. on an English license, are made from seaweed.

This sounds like a suitable dessert after a hearty meal of Metrecal.

Rack jobbers for health and beauty products are actively planning an expanded program, to fortify their position as well as increase the sale of these products in food stores.

The American Rack Merchandisers Institute has announced an expanded program for member nonfood manufacturers and suppliers at its Tenth Anniversary Convention to be held in Chicago on January 9-14, 1961.

Person-to-person conferences between supermarket nonfoods service distributors and suppliers of health and beauty aids will now be scheduled in advance for the final three days of the annual mid-winter supermarket merchandising workshop and Institute convention. Additional time has been allotted to these important contact meetings, so manufacturers and suppliers can schedule the merchandising of new and standard profit-making nonfood items.

Things certainly must be ready to pop for plastic bottles. A leading speaker at the recent meeting of the Society of Plastic Engineers said that the number of blow-molding firms has jumped from 15 or 20 to about 235 in the past three years.

This looks to us like the stuff that competition is made of.

According to Opinion Research Corp., trademarks have a language of their own, and the abstract signs of trademarks tend to communicate an image of a company that is youthful, progressive, forward-looking, and research-minded.

On the other hand, pictorial trademarks most strongly communicate past achievement, maturity, size, stability, warmth, and friendliness.

A bold artistic style, using thick dark lines, tends to emphasize strength, power, masculinity.

Trademarks with thin, light lines tend to highlight a relaxed and informal atmosphere, warmth and other human qualities.

Trademarks that suggest motion to the right evoke uniformly more favorable impressions than trademarks with leftward motion.

Bright colors tend to strengthen an image of youthfulness, excitement, low prices, modernity.

Muted colors appear to be more effective in conveying maturity, stability, reliability.

Are top salesmen "born that way," or is salesmanship an acquired art or training?

Probably this is the oldest argument among sales managers.

If we read the business press rightly, there has been a strong trend in recent years to a belief that training rather than natural qualifications is the determining factor in good salesmanship.

A recent article in *The Harvard Business Review* very bluntly takes the position that good salesmen have to be born that way. To quote, "What is really significant (and has not been apparent to managers, however) is that most of the qualities needed for successful development selling cannot be acquired.

"No amount of training can provide these qualities if a man does not possess them. A man has them or he does not. If he has them, training can develop and strengthen them; it can improve their use. But if he does not have them, training will not give them to him. Clearly, an adult who is not emphatic, introspective, or sensitive to subtleties of expression cannot be taught to be so.

"We have no means for increasing an adult's intelligence, imagination, resourcefulness, or ingenuity."

Johnson & Johnson baby products cradled in DYLITE® plastic

Package engineers from Johnson & Johnson had both mothers and infants in mind when they designed this baby gift package. To cushion their products, they chose an attractive, reusable tray molded from DYLITE expandable polystyrene.

This featherweight foam plastic tray snugly holds the baby things in place, safe from shipping damage. The intricate DYLITE platform supports the products in an upright position when in use and provides a convenient storage place when not in use. The smooth-skinned DYLITE tray is molded in a soft blue shade; it makes an appealing, sales-producing display piece . . . and one that will look attractive in the nursery.

Low-cost, easy-to-mold DYLITE can be made into trays, platforms, inserts, pads, liners—all designed to protect, display, and sell packaged products. Learn how it can help you. Write Koppers Company, Inc., Plastics Division, Dept. 1514, Pittsburgh 19, Pennsylvania. Koppers also makes these other fine plastics for packaging: DYLENE® polystyrene, DYLAN® polyethylene, SUPER DYLAN® high-density polyethylene.

KOPPERS PLASTICS KOPPERS

NEWS IN PACKAGING...

1. J. B. Williams Company has a new pegboard package produced by Western Printing. The extruded acetate by Joseph Davis Plastics forms a clear bubble for display and protection, extending at the bottom to permit the product to stand upright.

2. Mennen Brake, deodorant for men, features a glider applicator three times the width of the regular roll-on. The contour of the applicator is made to cover the underarm area with one motion. It is packaged in unbreakable plastic and holds 2 ounces.

3. Two new spray mists by Myrugia are packaged with a spanish theme. Maja and Joya, both are available in 2-oz. containers.

4. Squibb Laboratories' new multi-vitamin product is packaged expressly for children. The colorful design, accenting orange, the product's flavor, on a black and white background was designed and produced by Lord Baltimore Press.

5. Colgate-Palmolive Company's shipping container for Cashmere Bouquet Talc converts into a self-service display. The corrugated box by Hinde & Dauch Division, West Virginia Pulp and Paper Company, is printed in four colors to match the pink, green, blue and yellow talc containers.

6. Lakeside Laboratories, Inc., is distributing to physicians an emergency diuretic kit of clear polystyrene plastic, containing an ampule of Mercuhydrin Sodium and a vial of Metahydrin tablets. Designed to be included in the standard emergency bag, it measures 2 x 3 x 1 inches.

7. Amurol Products Company has introduced a sugarless Sweetener, liquid form in 4-oz., tablets in 1000-unit, bottles with applied labels of red, gold, and white. A special collar is attached to the purse-size plastic bottle by Plax Corporation, which holds 100 units or ¾ oz. Glass bottles, labels, plastic closures by Owens-Illinois Glass Company.

8. Lentheric is offering their new purse-size Tweed Hair Spray in a promotion package with the regular Tweed Hair Spray. They are combined in a white nylon net sack and fastened with a tag announcing the offer.

9. A new line of rectangular linear polyethylene bottles has been designed to save shelf space by Olympic Plastics Company. The unbreakable, lightweight bottles package powders, liquids or tablets and come in 1, 2, 4, 8, 16, and 32-oz. sizes, and can be provided in any color.

10. Coty is introducing a new line of dry skin treatment products with an attractive 3-D counter displayer. The labels have blue and gold lettering on a white background. *(Continued on page 329)*

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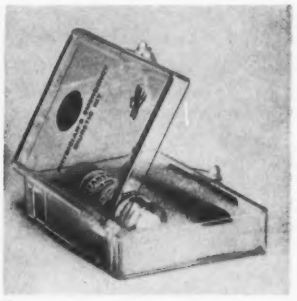
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In Aerosol Valves . . .

WHAT'S THE MOST VITAL ELEMENT OF SUCCESS?

Spray head, delivery tube, valve body or housing, gasket, ferrule, spring . . . all play a role in the success of an aerosol valve. How they are individually made, and how they are put together as a unit determine their effectiveness. This is where the most vital element of all is brought into play.

Know-how. It's more than a material part. It's experience, craftsmanship and pride in manufacturing the best aerosol valve. An axiom of quality is the greater the know-how, the better the product. When you buy Newman-Green aerosol valves, you're buying the most vital element of all . . . know-how. Try us soon.

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

151 Interstate Road Addison, Illinois Kingswood 3-6500

1. DuBarry has given a twist to its aerosol cologne bottle for Seven Winds Cologne Mist. Uncoated glass bottle by Maryland Glass Company, mechanical break-up valve by Risdon Manufacturing Company.

2. Bristol-Myers has redesigned its Bufferin carton for greater visibility at the point-of-sale and more immediate recognition of the brand name. The familiar red, white, and blue colors have been retained.

3. American Aluminum Company is offering 28 assorted stock sizes and shapes of seamless aluminum bottles, with a finish of commercial caustic etch. Advantages include the elimination of product loss due to breakage, protection of light-sensitive products, safety provided in handling, and lower shipping costs. The aluminum bottles are also hygienic, leak-proof, nonporous, nonmagnetic, nonsparking, and rustproof.

4. Shulton is presenting its new aerosol spray cologne in cartons printed by Lord Baltimore Press, using their gold stamping process, reverse tuck style, and Uni-tuck construction. Burnished gold leaves are used as a design motif for Desert Flower; purple and blue flowers for Old Spice.

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Price Increase for Glass Containers

Owens-Illinois has confirmed that they are seriously considering raising their prices, and the indications are that other firms will take their lead. The demand for glass containers has been strong, and transportation costs have been rising rapidly. Strengthening the industry's position in its competitive fight with other materials was the recent price increase by manufacturers of metal containers from 1 to 3 per cent. The increase has given the glass industry more room to maneuver prices without fear of losing out to competition.

Marketing Research

Louis Cheskin, director of the Color Research Institute, has made the following comments on research. "Like anything else, research can be bad or good. Research that is based on the assumption that people can tell you why they make choices can give you misleading information. Researchers who assume that people are interested in packages get the wrong answers. Researchers who use small samples of consumers are likely to come up with erroneous information. Testing memorability of an ad and assuming that recall equals marketing effectiveness leads to trouble. Researching only one phase of a marketing program can result in marketing failure."

Mr. Cheskin also discusses controlled research and the responses of housewives to packages, in a release issued by the Color Research Institute.

Metalized Laminations

Coating Products, Inc., has developed four new metalized plastic-to-fabric combinations. The various types of Mirro Brite are made with 0.0005 Mylar laminated to flannel backing, vinyl-coated cotton sheeting, general purpose vinyl-coated cotton sheeting, and elasticized cotton backing. Samples are available from the manufacturer at 101 West Forest Avenue, Englewood, N. J.

All-Time High for Glass Container Shipments

The Glass Container Manufacturers Institute has reported that domestic shipments of glass containers in 1960 established an all-time high.

According to the Institute's figures, shipments by GCMI's 36 glass container manufacturer members (more than 90 per cent of the industry) totaled 20,250,144,000 (20.3 billion) units in 1960, an increase of 2.5 per cent over the 19,747,584,000 (19.7 billion) units shipped in 1959.

There have also been significant gains in shipments of nonreturnable bottles for beer and soft drinks, and of glass containers for food products. This is particularly significant because food is the largest of the four end-use categories for glass containers, accounting for well over 40 per cent of all glass container shipments.

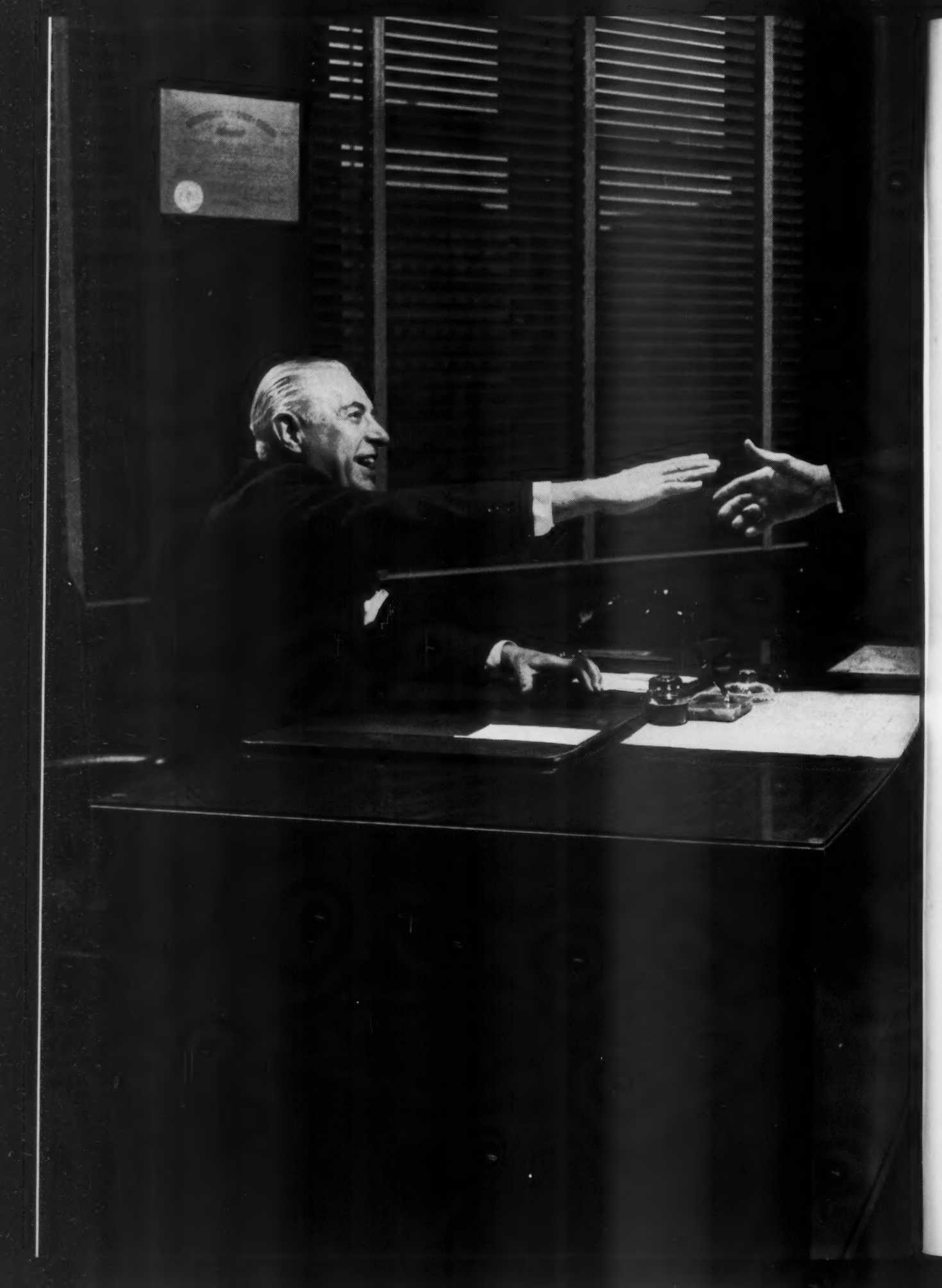
Linear Polyethylene

National Distillers and Chemical Corporation in connection with Phillips Petroleum Company has entered the market for high-density polyethylene.

As estimated 180 million pounds of high density polyethylene and ethylene copolymer resins will be sold in 1961. Total capacity by the end of 1962 is expected to reach about 600 million pounds, excluding National Distiller's unit, which will add 60 million pounds more. Dr. Robert E. Hulse, executive vice-president for National, believes the over-capacity situation to be a short-term problem, and that high-density polyethylene will be in short supply by early 1963.

New Hand Cream in Plastic Tube

Dorothy Perkins Hand Cream is a new formula by Daggett & Ramsdell, Inc., in a stand-up tube designed and made by Bradley-Sun Division of American Can Company. The tube is green and white, with an over-all coating to give a glass-like sheen. It allows convenient storage and retains its shape.



NEWS and VIEWS

BY TED KLEIN PUBLIC RELATIONS DIRECTOR*

Pictures in Print

A constant concern of most public relations men is how to get the pictures they send to publications into print. It is a well accepted fact that most of the prints sent to editors never see the light of day. The reason that only 15 per cent or so are used is the subject of a "guide" recently prepared by PR Aids, Inc., a service organization in New York City used by many public relations and advertising firms.

Here are their hints on getting editors to consider your picture:

1. Find one good photographer and give him all your work. Treat him like a part of your own organization. You will soon get used to working with him and he will quickly learn how to give you what you want. Always hire the photographer for his excellence, not his economy. There's no saving on pictures that land in an editor's waste basket.

2. Plan your pictures. Sit down with your photographer and plan what you want the pictures to say, how you want them to look, how you can tell the whole story in *pictures*. Plan the props, the people, and backgrounds so that it is a tight shot that an editor can easily fit into two columns of space.

3. Always try to tell your story in terms of people. People like people. But don't have more than six or eight, because it will take too much space to identify them all.

4. Keep backgrounds simple. If they're not part of the story keep them low-lit and out-of-focus.

5. Shoot for rich blacks, detailed highlights. The quality of the photos should be sharp, clear candids—don't use stiff, stilted studio shots, try for action. Often editors will accept a story because of the quality of the pictures.

6. Once the photographer has been briefed and you've provided him with the people and props, leave the picture taking to him. You hired him, at least you should have, because he knows his business.

7. It does pay, however, to send a PR man along to keep people relaxed and natural looking by making funny remarks, faces, or whatever is necessary.

8. If you're showing a process or operation, always keep people working naturally, as they would normally do; be sure they don't pose. Try for plenty of animation.

9. Captions should identify all persons with their full names (never use initials for first names—never F. S. Smith, say Frank S. Smith), have home addresses if the pictures are intended for hometown media, and identify from left to right. The best form for a caption is to paste it to the bottom of the picture so that the editor can read the caption and look at the picture at the same time. Think of the caption as a complete story. Be sure your information is absolutely accurate. And, never write on or paste a caption on the back of a picture. Be sure the caption has your name, firm, address, and phone number (this usually appears in caption at lower left).

10. In mailing pictures, always use a stiffener and face the photo to the back of the envelope to avoid damage from the post mark.

Pro and Con

In the January issue of *The Journal of Medical Education*, there are two articles worthy of considerable study by anyone associated with the business of making, selling, or prescribing pharmaceutical products.

The initial article is by Charles D. May, M.D., Clinical Professor of Pediatrics at Columbia University's Medical School. In his article called "Selling Drugs by 'Educating' Physicians," Dr. May writes, "Well-known firms are guilty of sponsoring dubious 'educational' material on topics of vital importance, and so the physician is left without any assurance of authenticity except from his own wits." He then proceeds to prove this case, using examples of what he feels is misleading and confusing advertising.

In the next article, "The Pharmaceutical Industry," John G. Searle and several other presidents of pharmacuetical firms present the industry's side of the story. Speaking for the Pharmaceutical Manufacturers' Association, these men write: "The members of the P.M.A. do not consider their advertising to be educational but merely informative. Promotion obviously is important for sales and the lowering in cost that actually is associated with volume production."

These two articles are about the best representation of the two sides of a controversy recently rekindled by the Kefauver investigation.

Public Relations in an Overcoat

A maxim of public relations which I've always tried to follow is: Get your story to the public as soon as you can do it effectively. And another: It isn't enough to do good; you must inform the public that you have done so.

These maxims were ably used by the Erie-Lackawanna Railroad the day after the 20-inch-plus snow storm—now just a melted memory. About five days after the storm, the public relations department (bundled in overcoats) of the railroad which normally carries 35,000 New Jerseyites to and from New York each day, met passengers as they got off the morning trains.

They handed each commuter, many of whom were using the trains instead of the buses, a "Memo." It was a single page mimeographed on both sides with probably no more than 700 words. After reminding the public of how the railroad had come thorugh the stress of a storm, it told riders this: "We think events of the past few days again emphasize the necessity for mass rail transportation . . ."

Vive la Difference

Logene Britton, editor of Ayerst Laboratories' house organ, found this interesting quote from *A Skeptical Psychoanalyst*, by Kenneth M. Colby, M.D. She used it in Ayerst's *Scoreboard*, under the title, "Men Versus Women."

"Men walk from the knee, while women walk from the hip. Men strike matches towards themselves, while women strike away. Men dress to look like other men while women dress to look unique within the current fashion. Men look at their fingernails by cupping their palms and bending their fingers towards themselves while women look at their nails by straightening their fingers palms outward. Men spit flecks of tobacco off their tongues; women pick them off."

*Paul Klemtner & Company, Inc.

Patents and Trademarks

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

PVP Aerosol Spray Patent Upheld

The La Maur-owned U. S. Patent 2,871,161, covering sprayable, water-free alcoholic polyvinylpyrrolidone (PVP) hair preparation, was sustained on January 23, 1961, by Federal Judge Devitt in Minnesota.

The other parties to the action were a local department store and G. Barr & Company, a manufacturer of aerosol products for a number of major companies in the cosmetic field, including Max Factor, Toni, Colgate, and Hazel Bishop.

This decision is noteworthy on several counts. In the first place, it recognizes the patent as a basic one in the aerosol hair spray field, seemingly pointing to the conclusion that all practical sprays that contain Freon, alcohol, and PVP are covered by the patent. Other consequences of the decision, while not so dramatic, may nevertheless be more important in the long run. For one thing, the decision shows that the courts will uphold a patent on a cosmetic if the patent covers a really useful invention *and* if the patent owner presents a well-documented case in court, backed up with scientific experts and information. Another consequence of the decision is that it shows the futility of "off-the-cuff" evaluation of patent coverage. This sort of thing is quite prevalent in all fields, not only in the cosmetic field.

The writer does not mean to suggest by reference to off-the-cuff evaluation that the defendants in the suit are guilty of such practices. The writer's interest here is only to point out that one can get into considerable error by making snap judgments on patent coverage. It may well be that the average person, reading the patent in question, would have come to a quick decision that the patent could be easily circumvented because of certain terms used in it. The writer knows of many cases in which people just can't understand why it is not possible to give a meaningful answer to a patent question right on the spot.

Before proceeding to a detailed consideration of the patent itself and of the court decision, it may be well to note that the decision in question was by a Federal U. S. District Court in Minnesota, and that it may not represent the last judicial word on this patent. For one thing, an appeal may be taken and it is always possible that the higher court may reverse Judge Devitt's decision. Then again, even if no appeal is taken or if taken and the appellate court upholds the decision, anyone not a party to the action would be free to contest the patent in areas of the country not within the jurisdiction of the Minnesota and appellate courts, respectively.

U. S. Patent 2,871,161

As already stated, the patent relates to an aerosol hair spray composed essentially of Freon, alcohol and PVP. It was based on an invention of Maurice L. Spiegel.

According to the patent, this composition imparts a beautiful luster to the hair, as well as desirable styling qualities, without the detrimental characteristics found in previous preparations, which were based on gums such as tragacanth or karaya or based on shellac. The gum-based compositions are said to take on a dry and dull appearance and to crack and break when disturbed. The shellac-based compositions also are said to crack and break and are further criticized because they require considerable combing and brushing, together with washing or other chemical treatment, to remove the laquer film preparatory to a new application.

The claims of the patent are set forth below:

1. A substantially water-free sprayable liquid hair styling preparation for applying to the surface of the hair for setting and lusterizing the same, comprising polyvinylpyrrolidone, alcohol, and a propellant selected from the group consisting of fluorochloromethanes and fluorochloroethanes.

2. A hair styling preparation for spraying under self-generated presure upon the surface of the hair for setting and lusterizing thereof, composed of a substantially water-free solution of polyvinylpyrrolidone, absolute ethyl alochol, and dichlorodifluoromethane.

3. A hair styling composition for setting and lusterizing the hair by spray application, composed of polyvinylpyrrolidone and di-ethyl phthalate mutually dissolved as a substantially water-free solution in ethyl alcohol in combination with dichlorodifluoromethane as a propellant.

4. A substantially water-free hair styling preparation suitable for spray application for setting and lusterizing the hair, comprising from 4 to 8 per cent of polyvinylpyrrolidone in an ethyl alcohol solution, and a propellant selected from the group consisting of fluorochloromethanes and fluorochloroethanes.

5. As a hair styling preparation, a substantially water-free ethyl alcohol solution of polyvinylpyrrolidone in combination with dichlorodifluoromethane as a propellant, for effecting the spray application of the solution onto hair.

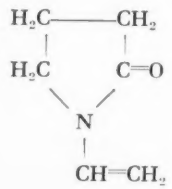
6. A substantially water-free hair styling composition for spray application for setting and lusterizing the hair, comprising a mixture of at least 4 per cent polyvinylpyrrolidone dissolved in alcohol, with a propellant selected from the group consisting of fluorochloromethanes and fluorochloroethanes.

7. A substantially water-free hair styling composition for spray application for setting and lusterizing the hair, comprising from 4 per cent to 8 per cent of polyvinylpyrrolidone in solution in absolute ethyl alcohol and, as a propellant, dichlorodifluoromethane.

8. A sprayable hair-preparation, comprising a substantially water-free alcoholic solution of polyvinylpyrrolidone and Freon.

*Richards and Cifelli, Newark 2, New Jersey.

9. A sprayable hair preparation comprising Freon, and a substantially water-free alcoholic solution of a product essentially consisting of polymerized units of the structure.



The Basic Facts

Although PVP has been known since it was synthesized in Germany in the Nineteen Thirties, the only commercial application of the material prior to the Spiegel invention was in the pharmaceutical field, especially as a blood plasma extender. Spiegel, a chemist, upon learning "through trade bulletins of the manufacture of PVP by the General Aniline & Film Corp. (GAF) in the summer of 1951, started experiments with it for use in the cosmetic field. He dissolved PVP in alcohol and sent the solution to Barr in Chicago for loading with Freon in pressurized containers for the purpose of determining the compatibility of the ingredients. They were compatible, and the resulting hair spray turned out to be superior to any then known."

The decision continued its recital of facts as follows:

"Early in 1952 plaintiff made arrangements to have its new hair spray manufactured by Barr. Plaintiff furnished the necessary PVP to Barr, identified only by the code name 'resin LM.' In March of 1952 plaintiff received his first shipments of aerosol PVP hair spray and has since been selling it under the trade name 'Style,' with marked success.

"At about the same time, it was claimed by plaintiff, Barr made unsuccessful efforts to identify plaintiff's resin LM, both by attempted chemical analysis in its laboratory and by seeking the technical assistance of the Catalin Corporation of America and the American Cyanamid Company. The resin LM could not be identified. Plaintiff claims that in June of 1952 Barr identified resin LM when it succeeded in surreptitiously uncovering a GAF label which plaintiff had concealed with dark ink and another label on a container shipped to Barr. The GAF label revealed that resin LM was PVP. It was further claimed that Barr immediately began experimenting with PVP hair spray for its own benefit, and took some of plaintiff's production stock of resin LM for that purpose.

"On July 31, 1952 Spiegel filed his patent application. In November, 1952 plaintiff shifted its loading business from Barr to another company. Plaintiff maintains that during all of this time it kept the identity of its resin LM secret and that Barr knew that it was to be kept secret.

"Meanwhile, the plaintiff had disclosed its secret to GAF in confidence. In November of 1952 GAF, allegedly taking advantage of the confidence, started to promote the use of PVP hair sprays throughout the industry, principally through one Edwin P. Hay, a salesman. Hay then told Barr about PVP hair spray.

"Between 1953 and 1956 the aerosol hair spray industry expanded tremendously, the majority of products being of the PVP type.

"On March 27, 1953, one Martinelli, a GAF chemist, filed a patent application for PVP hair spray. On February 21, 1957 the Patent Office formally declared an interference proceeding between the Spiegel application owned by the plaintiff and the Martinelli application owned by GAF. This interference proceeding, which was actually a contest between La Maur and GAF, eventually terminated on January 27, 1959 in favor of Spiegel and the patent in suit was issued to plaintiff.

"Subsequently plaintiff sought to issue licenses under the patent in suit to the entire trade. Some companies, e.g. Breck, took licenses, but most of the trade refused. The defendant Barr indemnified his customers against liability for infringement of the patent. By this time the aerosol hair spray business was running at a valume of approximately a million dollars a year, largely PVP sprays, which, it is claimed, infringe on plaintiff's patent."

Defenses

The defendants claimed that the patent was invalid because it lacks novelty, being anticipated by the prior art, because the patent does not comply with the requirement of 35 U.S.C.A., Sec. 103, and because the claimed invention was one that would have been obvious at the time the invention was allegedly made to a person having skill in the art. The defendants also argued that the claims were not stated in the full clear, concise and exact terms required by 35 U.S.C.A. Sec. 112.

In addition, the defendants took the position that even assuming that the patent is valid and complies with the requirements of the statute, there has been no infringement because the hair spray manufactured by Barr does not fall within any of the nine claims, and that it is a different product from Spiegel's. Defendant's product contained *copolymers* of vinylpyrrolidone with vinyl acetate rather than homopolymers of vinylpyrrolidone, as does Spiegel's.

The Infringement Issue

To resolve this issue, the court was faced squarely with the question of whether the claims were broad enough to cover even copolymers of PVP. In this connection, it may be noted that nowhere in the patent was there any specific mention of any polymerization product other than PVP. The patent did, however, state that the plasticity or flexibility of the film could be varied to suit individual tastes by addition of a plasticizer, specifically, diethylphthalate.

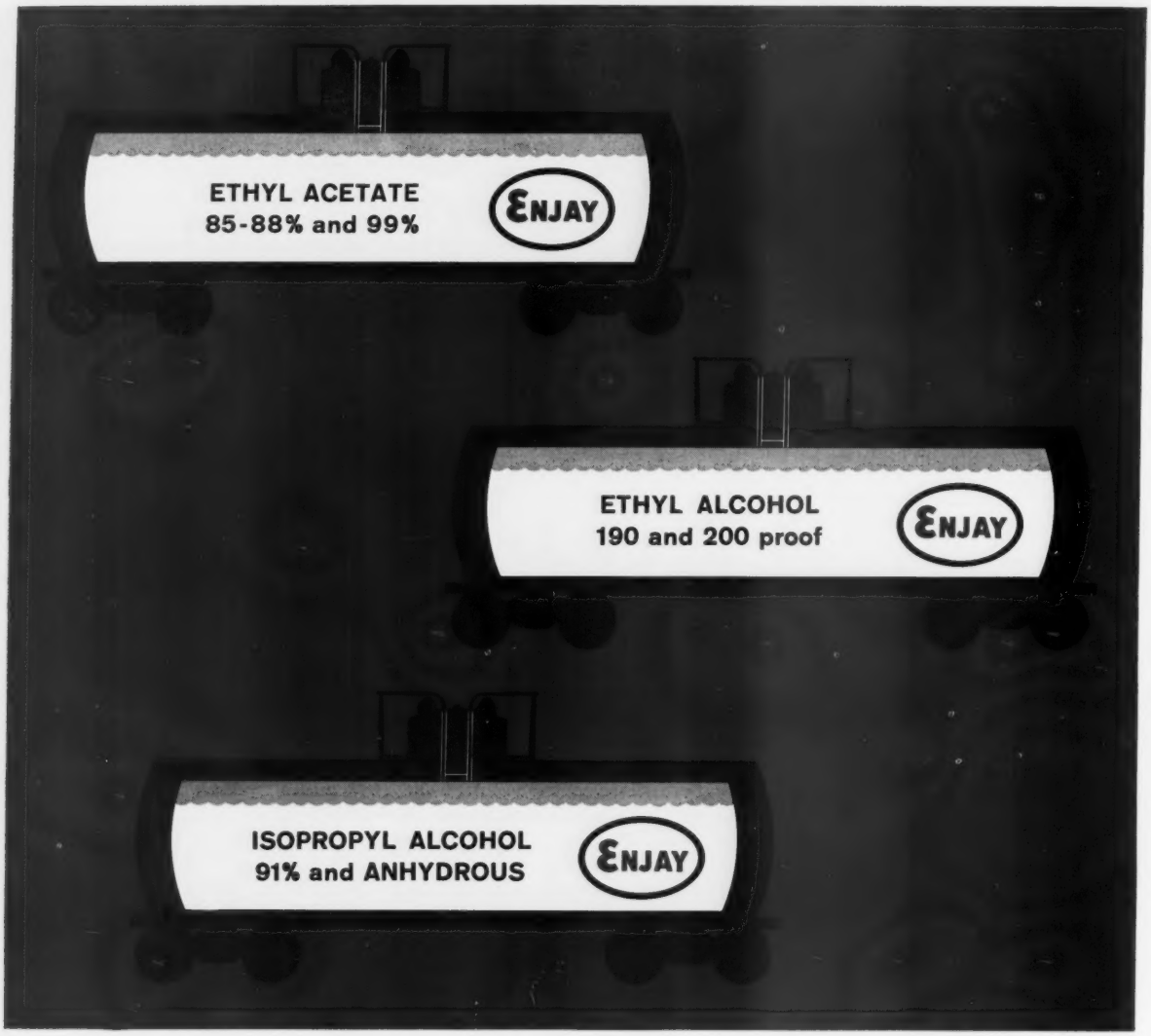
In resolving this issue, the court considered the technical testimony of various experts. These were Dr. Herman Mark, director of the Polymer Research Institute at Brooklyn Polytechnic Institute, Dr. Courtland Agre, a professor from Augsburg College in Minneapolis, and Dr. Edward J. Meehan, a professor from the University of Minnesota.

After devoting considerable attention to the niceties of polymer chemistry, and after indicating that the court was inclined to consider that the term "PVP" should be interpreted to include copolymers, as the latter amounted merely to an internally plasticized form of the polymer as distinguished from the use of a plasticizer to give an externally plasticized or physical mixture of the polymer, the court figuratively turned the tables and passed this question by ruling that the copolymer employed by Barr (PVP/VA E-735) was in reality PVP.

It is interesting that, while the

(Continued on page 388)

WHAT'S NEWS IN ENJAY CHEMICALS FOR COSMETICS



Enjay offers all 3 for the cosmetics industry...

You'll find Enjay a convenient source for your chemical needs in the production of cosmetics. Enjay offers high purity ethyl and isopropyl alcohol in addition to ethyl acetate in tank car or tank truck quantities, immediately available from convenient storage centers. Manufacturers of perfumes, colognes, aerosols, and after shave lotions know they can call on the experience of Enjay research to recommend chemical raw materials that will provide pleasing odors in each type of cosmetic.

For technical assistance with your blending or compounding problems be sure to call on the research and technical facilities of the Enjay laboratories.

For specifications and typical properties of these Enjay products, write to 15 West 51st Street, New York 19, New York.

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

A DIVISION OF HUMBLE OIL & REFINING COMPANY

ENJAY
PETROCHEMICALS

HARRY M. WEAVER

W. G. LLOYD

EDGAR A. LAZO-WASEM

FRANK H. WHEATON, JR.

NEWS...

Appointments and Promotions

Dr. Harry M. Weaver, formerly vice-president for research of the American Cancer Society, has been elected to this position for Schering Corporation. Dr. Weaver, a member of the American Public Health Association, the American Association of Anatomists, the New York Academy of Science, the American Medical Writers Association and England's Royal Society of Health, succeeds **Robert E. Waterman,** who has been elected senior vice-president. **Dr. David M. Williams,** formerly practicing in Plainfield, N. J., has joined the company's Medical Research division as a clinical pharmacologist.

Dr. W. G. Lloyd, a research chemist with the Dow Chemical Company, has been promoted to associate scientist. He has been working in the areas of structure and properties of network polymers, water soluble cationic polymers, and oxidation kinetics and mechanisms for the Polymer Research Laboratory, and has been with the company ten years.

Dr. Edgar A. Lazo-Wasem, with Wilson Laboratories since 1954, has been appointed technical director. He has published 21 scientific papers in the fields of biology, biochemistry and endocrinology.

Frank H. Wheaton, Jr., has been elected to the board of directors of the American Can Company. Mr. Wheaton is president of the newly formed American-Wheaton Glass Corporation, and of the Wheaton Glass Company.

Dr. Robert E. Dixon has been promoted to director of professional services at Roche Laboratories, division of Hoffmann-La Roche Inc. Dr. Dixon is a Fellow of the Royal Society of Medicine and a member of the Royal Medico-Psychological Association. **Irwin M. Korman** has been promoted to divisional sales manager, for the metropolitan area. **Herbert J. Conrad,** formerly with William Douglas McAdams, Inc., has been appointed market analyst in the marketing research department.

Armstrong Cork Company has appointed **M. J. Warnock,** first senior vice-president; **C. N. Painter,** with the company since 1924, to replace him as senior vice-president; and **James H. Binns,** formerly floor division general sales manager, as general manager of floor and industrial operations. **Harry A. Jensen** has been appointed general sales manager of the floor division to succeed Mr. Binns.

Vincent J. Robinson, president of Tek Hughes, has been named to the Johnson & Johnson board of directors.

K. Don Bowers has joined Dorsey Laboratories as marketing research manager.

Benjamin B. Lipske, who started the research department for National Can 30 years ago, has been named director of research.

Dr. Fred Bledsoe, with Pitman-Moore Company since 1943, has been promoted to director of the medical sales division.

White Laboratories, Inc., has promoted **Howard J. Solon** to eastern regional manager, and **John Y. Schrader** to western regional manager.

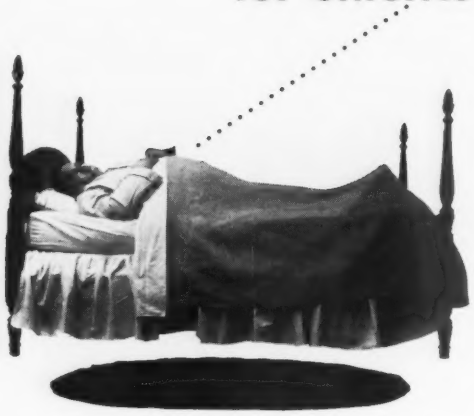
Eli Lilly and Company has promoted **Eugene F. Ratliff** to executive director of corporate development. He had been controller and director of administrative services at Lilly for the past four years. **Stanley F. Kern,** with the company since 1946, succeeds W. Brooks Fortune as executive director of control. **William W. Bromer** and **W. Max Stark** have been promoted to research associates. **Calvin D. Smith,** a former Lilly salesman, succeeds J. Armour Blalock as Memphis district manager.

Smith Kline & French Laboratories have made a major revision of their marketing division in order to centralize and expand marketing activities. Under the new arrangement, the division's activities will be grouped in three areas: sales, promotion, and marketing services. **James S. Smith** continues as assistant division manager in addition to the new position as director of promotion. **Richard A. Wagner,** formerly head of the professional service department, is director of sales. **Richard L. Hull,** formerly head of the marketing research department, is director of marketing services.

J. Arthur Hill, formerly vice-president, sales, has been promoted to vice-president and assistant to the president of Mead Johnson Laboratories. Mr. Hill, with the company since 1934, is being replaced by **E. A. Himes,** formerly director of sales in the New York office. The company has appointed **Dr. William G. Minich,** formerly with the Dayton State Hospital, and **Dr. Harold D. Lynch,** formerly company consultant as associate medical directors.

A. M. MacKinnon, assistant treasurer of Warner-Lambert Pharmaceutical Company, has been elected treasurer of the company.

battleground for enterics



Tablets coated with *Eastman C-A-P Cellulose Acetate Phthalate* can be counted upon to withstand erosion by gastric juices and stomach motion. The resistance is uniform and predictable. It does not depend on a time schedule because you cannot assume that everybody's stomach empties with clockwork precision.

But once the tablet advances to the small intestine, the coating releases the contents regardless of whether the territory is acid, alkaline, or neutral. Disintegration of the coating is prompt even at a pH as low as 6.8, uniquely triggered by the hydrolytic action of the intestinal esterases.

And the predictability of *C-A-P* operates in pan as well as man. Coatings deposit evenly, dry quickly. Properly applied, such coats are of controllable thickness, hard to damage in tumbling, smooth and glossy.

It behaves uniformly in plant, package, and people because we make it in its own special works, under a strict regime of chemical synthesis. It has proved itself more than a billion dosetimes.

Conceivably, a new coat of *Eastman C-A-P Cellulose Acetate Phthalate* could help you bring a new product out or an old one back. If you have any to talk over, tell us: ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

"Eastman" is a trademark

DPi

Also...vitamins A and E...distilled monoglycerides ...some 3800 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

D. R. EAGLESON

K. T. ZILCH

THOMAS J. ANGOLD

FREDERICK L. KOCHER

D. R. Eagleson, assistant sales manager for the past four years, has been named sales manager of the Fatty Acid Division of Emery Industries, Inc. **R. W. Chapman,** is now production manager, and **Dr. K. T. Zilch** has been appointed technical director for the division.

Thomas J. Angold has been named manager of the Kansas City plant by the Imco Container Company. Mr. Angold has been with the company for nine years and was formerly supervisor of the secondary department. Imco has transferred **Frederick L. Kocher** from Kansas City to Chicago, where he will continue as vice president. In another step toward expansion, Imco has appointed **Harold F. West** as sales representative in Canada. **Stuart Brown** has been appointed sales representative in California.

William R. Rifenburgh, has been appointed eastern sales manager for the container division of Thatcher Glass Mfg. Company.

Lehn & Fink has promoted **Robert E. Dickens** to general sales manager of the professional division. Mr. Dickens, formerly a sales representative, replaces **Charles F. Manz** who resigned in December. Three promotions of the Lehn & Fink Division include **Robert Varian** as brand manager for Noreen Hair Products and Medi-Quik, **Earle K. Borman** as assistant brand manager for Medi-Quik, and **George A. De Mott** as brand assistant for the Euiquet line. The newly established position of manager, marketing development has been filled by **Stanley W. Burnham.**

Daniel R. Pinkham has become president of the Lydia E. Pinkham Medicine Company succeeding his late brother, Arthur W. Pinkham. Other changes include the promotion of **Hermon E. Smith, Jr.,** to vice-president in charge of sales, and **Charles H. Pinkham, II,** as director and secretary of the corporation.

John P. Gleason has succeeded Walter G. Thomas as manager of the Washington office of Owens-Illinois Glass Company.

Philip A. Thomas has been promoted to assistant director of development for Union Carbide Plastics Company, where he has been since 1946. **Robert L. Burke, Dr. Thomas J. Mahoney,** and **Charles E. O'Rourke** have been promoted to product managers in New Chemicals Marketing. Seven Carbide sales representatives have been assignd new locations: **W. P. Emerson,** Dallas; **W. R. Britton,** Delaware Valley; **N. J. Hill,** Pittsburgh; **D. W. Urban,** Atlanta; **R. E. Feathers,** Atlanta; **E. E. Porter,** Delaware Valley; **D. L. Thornborough,** St. Louis.

William W. Hays has been appointed marketing manager of Atlas Powder Company's chemicals sales department. Mr. Hays joined the company in 1946 in a sales capacity.

Albert A. Austin has been promoted from sales manager to general sales manager of Container Corporation of America. Other appointments on the sales staff include **Joseph P. Giacalone** as sales manager, and **Theodore P. Langdon** and **George R. Sutch** as assistant sales managers. In the New York area **Earl L. Bradley** and **Jack D. Tovin** have been appointed sales managers.

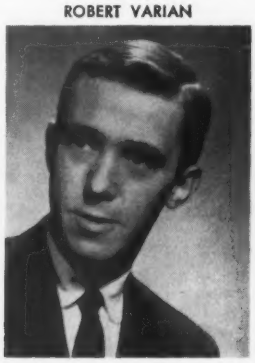
E. Everett Macdonough, Jr., formerly with Pfizer, has been appointed manager of special accounts of Sterwin Chemicals Inc.

Evan William Mandel has been appointed to the newly created position of vice-president of marketing services for Revlon, Inc. Mr. Mandel joined the company in 1955 as advertising manager.

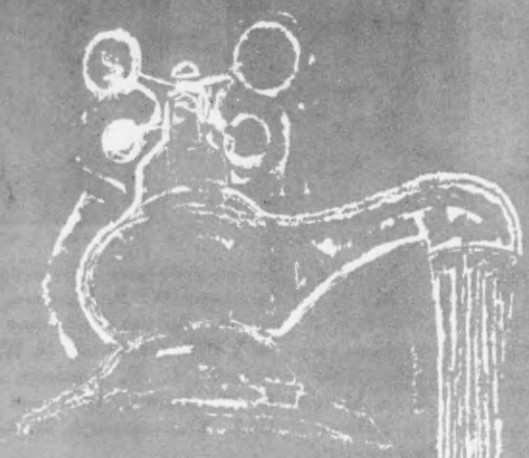
WILLIAM R. RIFENBURGH

ROBERT E. DICKENS

ROBERT VARIAN



STANLEY W. BURNHAM



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Geranyl Acetone Roche
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GAVIN HERBERT

DONALD B. HUFFMAN

K. J. MORRAY

MILTON GLASER

Allergan Pharmaceuticals has promoted **Gavin Herbert, Sr.,** to the position of board chairman. **Gavin Herbert, Jr.,** will replace him as president and executive officer after serving as executive vice-president for the past five years.

Donald B. Huffman has been appointed general sales manager for the Specialties Division of Armour Pharmaceutical Company.

K. J. Morray has been appointed sales manager of Silicon Products Department of the General Electric Company. He succeeds **Thomas J. March,** who has been appointed manager of sales operations of GE's newly-established Internal Automation Operation. **Charles A. Berridge** has been appointed sales representative of the Silicon Products Department.

Milton Glaser, with the firm since 1949, has been appointed sales manager for J. B. Roerig and Company, pharmaceutical sales division of Chas. Pfizer & Co., Inc. Three other promotions in the company include **Mevin A. Kloorfain,** as manager of the eastern sales region, replacing Mr. Glaser; **Milton Wasserman,** manager of the Manhattan district; and **John Thomas Washington,** district manager for New Jersey.

John T. Wilson has been appointed southwest regional sales manager of Shulton, Inc., where he has been since 1946. He formerly represented the Philadelphia area.

A. H. Robins Co., Inc., has promoted **John L. Burker,** formerly manager of the Tri-State division, to director of hospital sales; and **Edward L. Dawe,** formerly district supervisor in Chicago, to Tri-State division manager. They have both been with the company since 1952.

Dr. Nathaniel S. Ritter, formerly with Merck Sharp & Dohme, has been appointed associate director of medical research for Winthrop Laboratories, where he has been since 1953. Dr. Ritter is a member of the American Medical Association, Association of Medical Colleges and the Federation of Clinical Research. He is also an assistant in medicine at Bellevue Hospital, N. Y. C.

John A. Rudin has been promoted to manager of pharmaceutical sales division for Becton, Dickinson and Company. He replaces **Herbert H. Garrison,** who has been appointed northeastern sales manager of B-D's hospital-surgical sales division.

Dr. Max V. Sigal, Jr., formerly with Lilly Research Laboratories, has been appointed group leader in organic chemistry by the S E. Massengill Company.

Robert L. Baker, Jr., has been appointed sales executive in charge of the Cleveland sales office of Bemis Bro. Bag Company. Mr. Baker joined the company 25 years ago.

Dr. George Y. Brokaw, head of the distillation development laboratory at Distillation Products Industries, division of Eastman Kodak Company, has been named a senior research associate. Dr. Brokaw joined the company in 1947 for studies of synthetic Vitamin A.

Dr. Walton E. Grundy has been named head of the department of microbiology for Abbott Laboratories. He joined Abbott in 1948 as a research microbiologist. **Dr. Jacob C. Holper** has been named head of the department of infectious diseases. He joined the company in 1948 as a virologist.

DeForest Bowman, with Brockway Glass Company since 1955, has been appointed district sales manager in Omaha, Nebraska.

McNeil Laboratories has appointed three professional service representatives to the sales staff. They are: **William C. Parrish,** to cover New Haven; **Lionel J. Rothboard,** Chicago; and **Anthony E. Zampetti,** Auburn, N. Y.

The Gardner Division of Diamond National Corporation has appointed four packaging sales representatives: **Howard K. Roxborough, P. Jacques Loizeaux,** and **Edward O. Cooke** will cover the northeastern area; and **Russell A. Gaul,** the southeastern area.

Edgar Theimer has been promoted to production manager of Pharmich Laboratories, division of Michigan Chemical Corporation. Mr. Theimer joined the company in 1939 as a chemist. **Richard G. Bringardner** is now assistant product manager of Magnesia Sales division.

The newly created position of manager-research coordination for Colgate-Palmolive Company's Toilet Articles Division has been filled by **Harold N. Thorkilsen,** formerly Denver district manager. Mr. Thorkilsen joined the company in 1946.

Two research chemists have been appointed to the research laboratories of Parke, Davis & Company: **Dr. Stephen Hanessian,** formerly with Starch Products Co., of Alexandria, Egypt, as associate research chemist and **Naomi Hirss,** formerly an instructor at Johns Hopkins University, as research assistant. The company has also appointed **Marilyn K. Craft** and **Maria Lourdes G. Limson** as assistant research chemists.

WILLIAM MOGK

SEYMOUR SITZMAN

RUSSELL T. SMITH

ROBERT O. SLAUGHTER

In a realignment of the Coty sales organization, the following executive promotions have been announced; **William Mogk,** western territorial field manager; **Seymour Sitzman,** eastern territorial field manager, **Samuel Stern,** southern territorial field manager. Eight territorial district managers have also been appointed: **George Baltic,** the midwest district; **Jack Fielding,** the west coast; **James McGoldrick,** New England; **Ivan Goss,** the east central district; **Stanley Reuss,** the Eastern Seaboard; **David Chartock,** Metropolitan New York; **Lee Townsend,** the southeastern district; and **Charles Irving,** the southwestern district.

Russell T. Smith, sales representative for the Industrial Chemical Department of Commercial Solvents Corporation, has been assigned to the Cincinnati district office.

Robert O. Slaughter, with the company 28 years, has been appointed field sales manager with Bristol-Myers Products Division. **Burton Riordan** will succeed Mr. Slaughter as sales manager of the western region. He has been with the company since 1925. New division sales manager will be **Duane Anderson,** formerly district manager, who has been with Bristol-Myers since 1951.

P. K. Sheffield Elected

Peter K. Sheffield, an executive of the Sheffield Tube Corporation, has been elected to the board of directors of the Chicago Perfumery, Soap & Extract Association.

Depew in N. Y. Bar Assoc. Post

Franklin M. Depew, president of The Food Law Institute and for many years an attorney for the food industry and a specialist in food and drug laws, has been elected chairman of the New York State Bar Association's Section on Food, Drug and Cosmetic Law.

Mr. Depew is also a former member of the Special Committee on the Revision of the Regulations of Practice at Hearings before the Food and Drug Administration, as well as a charter member of the Division of Food, Drug and Cosmetic Law in the Section on Corporation, Banking and Business Law of the American Bar Association.

A. Firestein Chosen

Alfred Firestein, vice-president and director of Max Factor & Company, has been elected a member of the board of directors of the National Toilet Goods Association.

W. J. Geimer Retires

William J. Geimer, manager of the Bemis Bro. Bag Company's Packaging Service in Minneapolis for the past 15 years, has retired.

Mr. Geimer, who has been with the company 44 years, is succeeded by Robert J. McDonald, formerly assistant manager of the plant.

New A.M.A. Division

The American Management Association's new Purchasing Division will be concerned with the management of more than $150 billion of purchases made annually by business and industry, Andrew M. Kennedy, Jr., vice-president of the Association will head the division.

Scientists To Address Convention

Two of the world's foremost scientists will address the Pharmaceutical Wholesalers Association annual convention in Las Vegas, March 15 through 18. Dr. Edward Teller will speak on nuclear radiation, and Commander George F. Bond will discuss the problem of man living under the sea or in outer space when exposed to extreme pressures.

Proprietary Assoc. Officers

The 1960-1961 officers of the Proprietary Association are: president, Joel Y. Lund, Warner-Lambert Pharmaceutical Co.; vice-president, Ivan D. Combe, Combe Chemical, Inc.; vice-president, Jerome A. Straka, Chesebrough-Pond's, Inc.; executive vice-president and treasurer, Howard A. Prentice; secretary, James H. Merritt; medical consultant, Frederick J. Cullen; general counsel, James F. Hoge, Rogers, Hoge and Hills.

The Association has moved its headquarters and staff offices to Suite 1101, Penn 17, 1717 Pennsylvania Avenue, N.W., Washington 6, D. C. The telephone number remains the same.

A.S.P. Announces Officers

The American Society of Perfumers, Inc., has announced the following officers: chairman of the board, Bernard Polak, Polak's Frutal Works, Inc.; president, William H. Barlow, retired; first vice-president, John Hancock, Warner-Hudnut; second vice-president, Harry Cuttler, Revlon, Inc.; secretary, Dorothy Douglass, Shulton, Inc.; treasurer, Edwin D. Morgan, Jr., Lever Bros. Co.

The theme of the society's annual symposium, to be held in April, will be "Experimental Findings on Odor and Olfaction."

London Congress Themes

The themes of the Congress of the International Federation of Societies of Cosmetic Chemists to be held in London during July, will be Biological Aspects, and Physical Chemistry. Anyone wishing to submit a paper describing original work is requested to write A. Herzka, care of Pressurized Packaging Consultants, Ltd., Ashbourne House, Alleron Gardens, London, N.W. 11, Eng.

Elmer Bobst Receives Award

The Columbia University College of Pharmacy Alumni Association has awarded the 1961 Rusby Award to Elmer H. Bobst, chairman of the board, Warner-Lambert Pharmaceutical Company. The award is made

ELMER H. BOBST

in recognition of his more than 50 years of devoted service to pharmacy and public health, and particularly for his activities on behalf of the college.

New Association

The Process Equipment Manufacturers Association has been formed. It held its first annual meeting on January 12, at the Harvard Club, New York City. One of its principal purposes is to assist its member companies in improving the efficiency of their operations.

J. D. Hitch, Jr., director of Dorr Oliver Inc., is president; Harlowe Hardinge, president of Hardinge Co., is vice-president; and R. P. Kite is executive secretary-treasurer.

Company Changes Name

S. B. Penick & Company has announced that its associate company in England, C. F. Gerhardt Ltd., will now be known as Gerhardt-Penick Ltd.

The new name reflects the traditional status of C. F. Gerhardt Ltd., as well as its close relationship with the Penick organization in New York.

Felton Foreign Representatives Visit U.S.A.

The Felton Chemical Company, Inc., recently conducted a three-day sales meeting at the Hotel Biltmore, New York City. In addition to Felton's domestic personnel, representatives from their international affiliates in France, Mexico, and Great Britain also attended.

Roubechez Moves

Roubechez, Inc., has moved its offices and plant to a new building at 39 Roselle St., Mineola, Long Island, N. Y.

New Fath Office

Les Parfums Jacques Fath of Paris have formed an American branch, with executive offices and showroom at 5 East 57th Street, New York City. Nicholas Baker has been appointed director. Roscella McQueen Lightner, who has been with Evyan Perfumes for eight years, has been appointed office manager. Other appointments include William F. Donegan, formerly with Richard Hudnut and Max Factor, as midwest sales manager; Alice Leeper, formerly with John Robert Powers, as promotional representative for the west coast; and William H. Russell, formerly with Richard Hudnut and Revlon, will cover West Virginia, Virginia, Delaware, Maryland, Pennsylvania, western New York.

Expansions, New Plants and Acquisitions

Plastic Suppliers has completed a program for expansion including the installation of a new high-speed custom slitter, tripling production capacity, and the increase of the warehousing facilities by one third. The plant has been completely air-conditioned and humidity-controlled for greater uniformity of plastic materials . . . **C. F. Kirk Laboratories, Inc.,** New York City, has acquired **Moore & Company, Inc.,** Worcester, Mass. Terms of the transaction were not disclosed. Moore & Company, Inc,. will maintain its separate identity and existing management . . . **Lord Baltimore Press,** an affiliate of International Paper Company, has expanded its operations to include the Mexican market by the acquisition of **Envases Aztlan,** Mexico City from **W. R. Grace & Company** . . . **Procter & Gamble** is forming a new overseas company in Chile, under the name of Procter & Gamble S.A.I. It will enter an arrangement with **Perlina S.A.I.,** Vina del Mar, Chile, for the manufacture and sale of soaps and synthetic detergents in Chile . . . **Knox Glass, Inc.,** has established new sales offices in Philadelphia and Baltimore, to take over the business formerly handled by the company's franchised representatives in the areas. The district sales manager in Baltimore is William A. Seger, in Philadelphia, Walter Caskey . . . **Firmenich Inc.,** has moved to new enlarged offices and facilities at 5422 North Milwaukee Avenue, Chicago, where operations will continue under the direction of L. C. Richard Meyers as manager . . . Negotiations are nearing completion, pending fulfillment of legal prerequisites, for an exchange of **American Hospital Supply Corp.** stock for all shares of **Bruck's Nurses Outfitting Company, Inc.,** New York City and its affiliated companies. American has also reported that negotiations await legal requirements for an exchange of stock for that of **Midwest Dental Manufacturing Company** of Chicago . . . **Dow Chemical Company** is planning a new plant at its Louisiana division in Plauemine, to produce medium- and high-density polyethylene copolymers as well as polypropylene . . . **Miles Chemical Company** will construct two pilot plants at Elkhart, Ind., to centralize the research and development of its enzyme, bulk chemicals, and fermentation products.

H. R. Frehn (center) executive vice-president, has retired from S. E. Massengill Company, where he had been since 1923. He is shown with F. W. De Friece, Jr., (left) president and F. W. De Friece, (right) board chairman. Mr. Frehn continues as management consultant.

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Produced by a unique process from carefully controlled raw materials Procaine Hydrochloride Lemke is indeed a product of unsurpassed quality:

1) Consistently assays 99.9 - 100%
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Methionine, N.F.
Phthalylsulfacetamide, N.F.
Para-Aminobenzoic Acid, N.F.
Resorcinol, U.S.P.
Sulfacetamide, N.F.
Theophylline, N.F.

Methylparaben, U.S.P. ✲ Propylparaben, U.S.P.
Diiodohydroxyquin, U.S.P. Regular or Special
Salicylanilide, N.F.

*p-Aminobenzamide
ANAM (Aminophylline, U.S.P.) free-flowing granular; 80 or 100 mesh powder
Benzocaine, N.F.
Betaine Anhydrous
Betaine Hydrochloride
Calcium Gluconate, U.S.P.
Calcium Acid Glutamate
Calcium Glutamate
Calcium Succinate Monohydrate
Diiodohydroxyquin, U.S.P.
Diiodohydroxyquin, U.S.P. Purified
Glutamic Acid, 99-100%
Glutamic Acid Hydrochloride, N.F
Glyceryl Guaiacolate
8-Hydroxyquinoline Benzoate
8-Hydroxyquinoline Citrate
8-Hydroxyquinoline Potassium Sulfate
8-Hydroxyquinoline Sulfate
*Magnesium Glycinate
Mannitol, N.F.
Mannitol Hexanitrate
Methenamine Mandelate
Methionine, N.F.
Methylparaben, U.S.P.
PABA, N. F. (Para-Aminobenzoic Acid) Dense or fluffy
* Made to order.
PABA Amide see p-Aminobenzamide
PABA Calcium
PABA Magnesium
PABA Potassium
PABA Sodium Anhydrous
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Procaine Hydrochloride, U.S.P.
Propylparaben, U.S.P.
Resorcinol, U.S.P.
Salicylamide, N.F.
Salicylanilide, N.F.
Sodium Benzyl Succinate
Sodium Caprylate
Sodium Dehydroacetate
Sodium Glutamate
Sodium Succinate Anhydrous
Terpin Hydrate, N.F.
Theophylline, N.F. Anhydrous
Theophylline Ethylenediamine see Aminophylline
Theophylline Monoethanolamine
Undecylenic Acid, U.S.P.
Zinc Undecylenate, U.S.P.

SULFA DRUGS

Phthalylsulfacetamide, N.F.
*Phthalylsulfathiazole, U.S.P.
*Succinylsulfanilamide
*Succinylsulfathiazole, U.S.P.
Sulfacetamide, N.F.
Sulfacetamide Sodium, U.S.P.
Sulfanilamide, N.F.
(All sulfas are supplied as regular powder, 200 mesh or micronized powder)
* Made to order.
* Made to order.

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Benzil
Benzilic Acid
Benzoin
*n-Butyl Adipate
Dibenzyl Succinate
*Dibutyl Succinate
*Diethyl Succinate
H.D.P. Hydrochloride (2-Hydroxy-4, 6-Dimethylpyrimidine Hydrochloride)
8-Hydroxyquinoline Base
*Methyl Benzilate
*Methyl-p-Toluenesulfonate
*Methyl-p-Toluenesul-Mono Benzyl Succinate
*n-Propyl Adipate
*8-Quinoline-5-Sulfonic Acid
Sodium Succinate Anhydrous
Succinic Anhydride

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Saponin Pure
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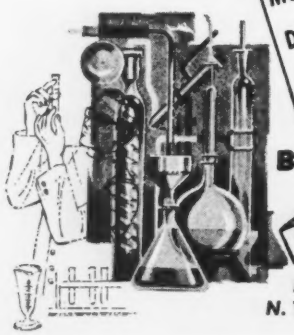
INDUSTRIAL AND PHARMACEUTICAL FUNGICIDES AND BACTERIOSTATS

*5-Chloro-8-Hydroxyquinoline
Copper-8-Hydroxyquinoline
Diiodohydroxyquin
8-Hydroxyquinoline Base
8-Hydroxyquinoline Benzoate
8-Hydroxyquinoline Citrate
8-Hydroxyquinoline Sulfomate
8-Hydroxyquinoline Sulfate
8-Hydroxyquinoline Potassium Sulfate
Methylparaben
Propylparaben
Salicylanilide
*Salicyl-2, 5-Dichloranilide
*Salicyl-4-Chloranilide
Sodium Caprylate
Sodium Dehydroacetate
*P.T.S.A. (p-Toluenesulfonamide)
* Made to order.



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CIBS Meeting

The Cosmetic Industry Buyers & Suppliers Association, at its January 12th meeting at the Hotel Manhattan, N. Y. C., introduced the new officers. They are, Robert C. Ring, Hewitt Soap Co., president; J. William Voit, George Lueders & Co., first vice-president; Eugene M. Roberts, Lanvin Perfumes, Inc., second vice-president; Frank N. Pond, Dominion Products, Inc., corresponding secretary; Horatio R. Rogers, Colgate-Palmolive, Inc., recording secretary; Robert J. Roberts, Emery Industries, Inc., treasurer.

Other officers are T. Morgan, publicity chairman; H. R. Miller, director; W. Morton, luncheon chairman; D. D. Roush, general program chairman; G. B. Luce, golf chairman; James E. Beyer, director; Allen T. Stewart, membership chairman; S. Mudge, auditing chairman, L. Scovill, director; J. Weinstein, personnel chairman; H. T. Kaneff, dinner dance chairman; G. J. Shumacher, constitution chairman.

Frazer V. Sinclair, publisher of DRUG AND COSMETIC INDUSTRY was the guest speaker at the meeting. He traced the growth and future outlook for cosmetic sales and emphasized that cosmetic producers should maintain close contact with their suppliers.

Kurlash Appoints Slifer-Weickel

The Kurlash Company of Rochester, New York has appointed Slifer-Weickel as drug sales representatives in the New England and Western New York areas.

New Policy

Smith Kline & French Laboratories has a revised distribution policy, to make products in bulk packages available to retail pharmacists. The program includes the stocking by wholesalers of the new bulk packages for sale to retail pharmacies, as well as to all hospitals—the price for both being the same—and the authorization of wholesalers to accept returns of unopened bulk packages.

New German Firm

Dehydag Deutsche Hydrierwerke Gmbh has founded Henkel International Gmbh, Dusseldorf to handle its export business. Business will be carried on in the usual way. through the new company. The firm's distributors in the United States are Fallek Products Company, Inc., New York City; Ben R. Hendrix Trading Company, Inc., New Orleans, La.; A. H. Carnes Company, Chicago, Ill., and, in Calif., R. E. Flatow & Company, Inc., Oakland and Los Angeles.

New CIBS officers: left to right, front—F. N. Pond, corresponding secretary; R. C. Ring, president; J. W. Voit, 1st vice-president; R. J. Roberts, treasurer; back—T. Morgan, publicity chairman; H. R. Miller, director; W. Morton, luncheon chairman; D. D. Roush, general program chairman; G. B. Luce, golf chairman. Officers not shown are listed at left.

New Shulton Division

Shulton, Inc., has formed a new division for the field of proprietary drugs to be known as Colfax Laboratories

Frederick C. Visor will be responsible for the development and marketing of all new pharmaceutical products now in test markets, as well as the distribution of the present Shulton pharmaceutical line. Colfax will have national distribution through the Home Products Division of Shulton.

E. Krueger On National Formulary Committee

Elmer O. Krueger, director of control at Abbott Laboratories, has been appointed, until 1965, to the Committee on the National Formulary.

The committee, of 12 members is responsible for revisions of the Formulary, which currently provides official standards for over 700 drugs and preparations. Published by the American Pharmaceutical Association, revisions are issued every five years.

Mr. Krueger has been with Abbott since 1937, and received their Scientific Award in 1950.

BIM of the Year

John Gabrielsen of Avon Products, Inc., received the annual BIMS award during the largest dinner ever held by the organization, at the St. Regis Hotel Roof, in February.

H. A. Fulton of Avon made the presentation.

Du Pont Acquires Canadian Rights

Canadian rights to a United States process for molding liner-less closure caps from linear polyethylene have been acquired by Du Pont of Canada Limited, from Dover Molded Products Company of Dover, Ohio, an affiliate of Kessler Products Company, Inc.

The new closure, called UN-A-TOP (R), eliminates the need for liners in caps for all types of containers.

Breck Advertising Receives Awards

Advertising created for and by John H. Breck, Inc., during 1960 was given six different awards in the recent 9th Annual Merit Award Contest held by the Advertising Club of Springfield, Mass.

Scovill Forms New Division

Schrader-Scovill International Division has been formed recently to coordinate all overseas manufacturing and marketing operations of Scovill Manufacturing Company, Inc. Russell C. Flood, a vice-president of Scovill, and formerly general operations manager, has been named general manager of the new division.

Other appointments include Frederik R. Starr, former Schrader division planning manager, as administrative manager, and Frank Fernandez, formerly managing director of Valvulas Schrader do Brasil, as technical manager.

The new International Division is located at 470 Vanderbilt Avenue, Brooklyn, N. Y.

Ruger Appointed Distributor

Ruger Chemical Company, Inc., has been appointed small quantity distributor by the Kessler Chemical Company, Inc.

N. V. Sluys of Beochout, Belgium, has appointed Ruger as its exclusive distributor for the United States. The addition of the Sluys line of essential oils and flavors gives Ruger the largest diversified stock of essential oils, flavors, and chemicals in the U. S.

Orbis Moves

The Orbis Products Corporation has moved its Chicago office from 5628 North Elston Ave., Chicago 46, Ill. to 601 West 26th Street, New York City 1.

Smith Appoints Cron Chemical

Cron Chemical Corporation, Houston, Texas, has been appointed sales agent for Werner G. Smith, Inc., Cleveland, Ohio, producer of sperm oil products, and a wide variety of other oils and fat-based chemicals.

Lord Baltimore Using Six-Color Presses

The first coast-to-coast network of 6-color lithograph presses for high quality reproduction on folding paper boxes is in operation by Lord Baltimore Press.

The company's four new 6-color presses, integrated with other Lord Baltimore facilities, are running in plants in Baltimore, Maryland; Clinton, Iowa; and San Leandro, California. Investment in these new presses, all installed within 18 months, was estimated at over $3,000,000.

Lord Baltimore's matched facilities mean added economies in the form of greater uniformity, inter-plant quality control, reduced freight costs and faster service. The new multi-color network is of particular interest to national accounts and users of folding paper boxes with multi-plant operations of their own.

Lord Baltimore Press is a subsidiary of International Paper Co.

Private Brands Company, a division of WPC Enterprises, Inc., is constructing the building shown, specifically designed for contract packaging. The total production area is 107,000 square feet, which can be expanded to twice that size. A 510-ft. shipping platform runs along its full length.

Commercial Solvents Acquires Vitamin Companies

Commercial Solvents Corporation has acquired four companies that manufacture and market stabilized vitamins by patented processes for the animal feeds industry. The companies are Stabilized Vitamins, Inc., Vitaron Chemical Manufacturing Company, Inc., Astrol Products, Inc., and Iowa Nutrition Company.

W. Barlow

William Barlow, president of the Society of American Perfumers, was killed by a hit-and-run driver on February 25th. Mr. Barlow was head perfumer at Orbis Products Corporation.

This 6-color offset lithography press has been installed recently at the Baltimore plant of Lord Baltimore Press. Other presses, in the first network of matched and integrated 6-color litho facilities, are in Lord Baltimore's plants in Clinton, Iowa, and San Leandro, California.

E. W. Bauer

Edna Warner Bauer, president of Pfaltz & Bauer, Inc., died in Muhlenberg Hospital February 13 after a long illness. Her age was 75.

Mrs. Bauer became president of the firm after the death of her husband in 1938. She is survived by a daughter, Mrs. George Winspear.

O. B. Newton

Orson Benjamin Newton, Jr., vice-president and sales manager of C. B. Fleet Company, where he had been since 1936, died January 25, in Lynchburg, Virginia. Mr. Newton was a past member of the Board of Directors of the American Pharmaceutical Manufacturers' Association.

A. T. Buskens

A. Thomas Buskens, vice-president of Pneumatic Scale Corp. Ltd., died January 24, at the age of 65, as the result of a subway accident. He had been associated with the sales organization of Pneumatic Scale since 1924.

R. Forster

Rene Forster, president of the Rene Forster Company, Inc., New York City, died in December, at the age of 44.

J. G. Murray

John G. Murray, vice-president and technical director of the Continental Can Company, died January 25, at the age of 54.

Mr. Murray supervised the activities of Continental's Central Research and Engineering, Construction Engineering and Equipment Manufacturing Division, and its patent department.

Mr. Murray had been with Continental Can since 1929.

New POLYOX water-soluble resins give toiletries that creamy-smooth feel

POLYOX resins add a pleasing lubricity to facial and hand creams . . . brushless shaving creams . . . lotions and other toiletries. In toothpastes, they give a desirable "mouth feel."

You can choose from a wide range of viscosities with POLYOX resins. In three grades, they have molecular weights ranging from several hundred thousand to over six million. Truckload quantities of POLYOX resins are available *now*—as are samples for laboratory projects and evaluation.

A Technical Representative in the CARBIDE office nearest you can give you more information on POLYOX resins. He can suggest starting formulations, and supply price and shipping information. For a new technical bulletin listing grades, properties, and numerous applications, write Dept. H, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y.

POLYOX and UNION CARBIDE are registered trade marks.

UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

(*Continued from page 305*)

initially at $25 a share. With Miltown paving the way, it soared above 80 in 1959. It fell last year to a low of 40, but bounced back to over 50.

Johnson & Johnson. Sales and profits have nearly doubled since 1950, but stock value has tripled. J&J sold for $60 a share in 1950. A 5 per cent stock dividend was declared in 1951 and there was a 2½-for-1 split in 1959. Each share is now worth more than $80.

Lehn & Fink. Sales and profits have doubled since 1950. Stock has not been split. It sold for $10 a share in 1950; closed 1960 at $75.

Mead Johnson. Sales doubled before Metrecal, which doubled them all over again. Stock has not been split. It sold for $13 a share in 1950; closed 1960 at $142.

Norwich Pharmacal. Sales and profits have tripled since 1950 but look at the stock: Selling for $12 a share in 1950, it was split two-for-one in 1957 and 1959. At the recent price of $45, this means that $12 invested in 1950 is now worth $180.

Parke, Davis. Sales and profits have nearly doubled since 1950. Stock was selling for about $38 to $40 in 1950 and it is still at this level. However, the one share of 1950 has become three as a result of the three-for-one split in 1958.

Pfizer. For several years one of Wall Street's favorite stocks. Selling for $60 a share in 1950, stock was split three-for-one in 1951 and 1959. Results: The $60 invested in 1950 was worth $270 at the close of 1960.

Plough. Another hot one, it sold for $10 a share back in 1950, was split two-for-one in 1956. Plough was recently selling above $75, an appreciation of *15 times* the 1950 value.

Revlon. Another skyrocketer, it could have been bought in 1957 for $25 a share. It zoomed to $60 in 1959 and recently advanced to $97 in anticipation of a new split.

Richardson-Merrell. Sales and profits have tripled since 1950 but stock has performed far better. Back in 1950, when this company was known as Vick Chemical, stock was selling for $25. There were 2 per cent stock dividends in 1954, 1955, and 1956. The stock was split five-for-four in 1957, two-for-one in 1959, and four-for-three in 1960. Result: If you had bought 100 shares in 1950 for $2,500 you would now have 352 shares worth more than $30,000.

G. D. Searle. The Searle family still holds more than 50 per cent of the stock, making for a thin market. In 1952, Searle was traded on the over-the-counter market for about $60 a share. The stock was split three-for-one in 1955. Searle recently moved from $50 to $80, giving a stock appreciation of *four times* since 1952.

Smith, Kline & French. This company has made a spectacular showing. Stock sold for $60 a share in

GCC

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TEGACID yields stable emulsions having prime texture, spreadability and cosmetic elegance—spanning the viscosity range from thin lotions to heavy creams and gels.

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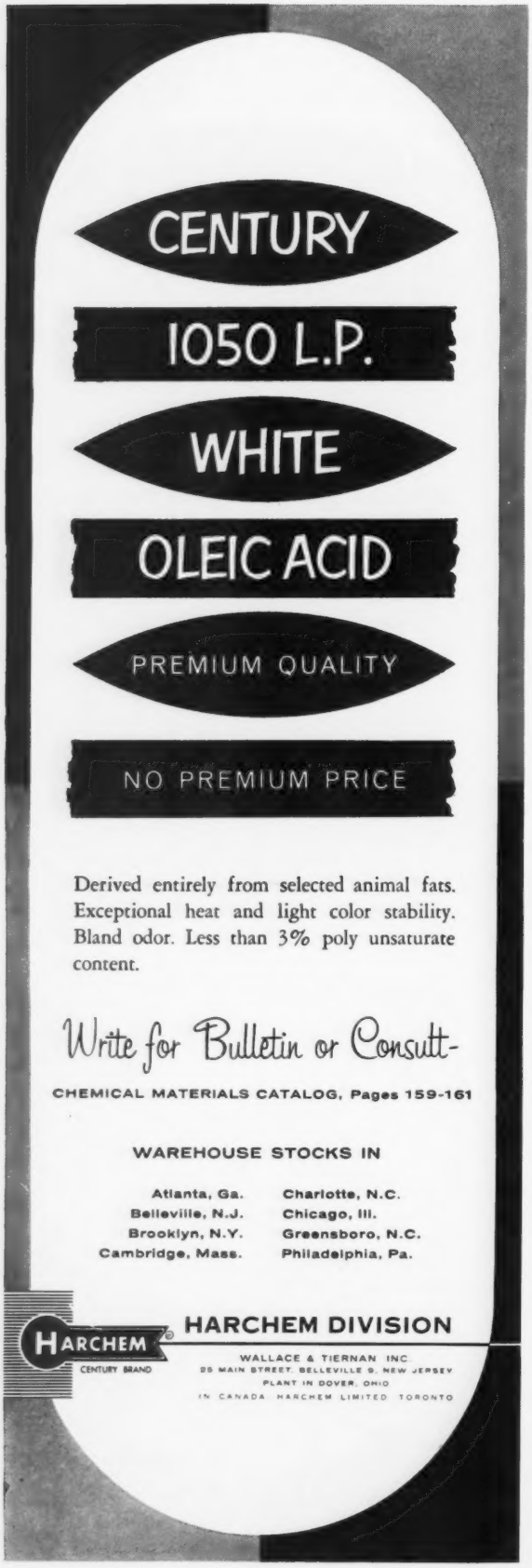
For more detailed information about which of the PVP/VA Copolymers best suits your requirements, write for our 20-page technical bulletin.



1950. Split two-for-one in 1950 and three-for-one in 1954 and 1959. Result: The $60 invested in 1950 is today worth more than $900.

The records of 15 companies are described above. Others could be cited and we do not have to go back ten years to prove our point. Here, for example, are some performances over the past three years (1958-1960):

Baxter Laboratories stock has appreciated some *10 times;* Merck has doubled; Schering despite a 20-point drop last year, has gained 50 per cent; Miles Laboratories has appreciated by *five times;* Gillette has doubled; Beauty Counselors has appreciated by *eight times;* Chesebrough-Pond's has nearly tripled; Sterling Drug has more than doubled; Helene Curtis has tripled; Max Factor has tripled.

Helena Rubinstein doubled in value in 1960 alone.

Had enough?

It is always galling, of course, to have someone point out how much money you *could* have made with the right investment. Hindsight gives such wonderful vision. What everyone wants to know is what stocks to buy for the future. Where are the SK&Fs and AHPs of tomorrow? With these questions, this writer beats a hasty retreat. All that has been attempted here is to show how the companies in this industry have performed *in the past*. We leave it to others to determine whether the past is a guide to the future.

CHINESE MEDICINE

(*Continued from page 307*)

herbal practitioners of today continue to add new discoveries to their profession, thereby increasing the number of medicines to keep pace with new diseases discovered and identified. Consequently, herbal medicine, like its Western counterpart, is a constantly developing field.

At the same time, Taiwan's colleges and universities are training hundreds of practitioners in modern medicine. Its research laboratories and centers of science contribute invaluable data useful to the practice of modern medicine. There is considerable progress, too, in the production of pharmaceuticals, and many of the world's newest drugs are being packaged here as local demand for them increases.

Perhaps in the ancient Chinese art of herbalism will be found solutions to mysteries that have confounded Western medical science for years, or new cures for hitherto incurable illnesses. Only time and intensive research will tell.

GOVERNMENT CONTROL OF COSMETICS

(*Continued from page 311*)

cosmetics, as with drugs, there must be concern not only with the proposed use of the product but also with the influence of environmental factors, such as

sunlight. The role of photosensitization in inducing ill effects with cosmetics has been noted with certain essential oils and lipsticks. Pre-testing for such effects should be considered prior to introducing products that will remain *in situ* for varying periods of time. The possibility of ill effects from the inhalation of sprays must also be kept in mind.

Color Additives

Although the Act originally provided for certification of harmless and suitable coal-tar dyes previous to inclusion in cosmetics, these provisions became unrealistic and required new and clear statutory directives which recognize that some colors that are not completely harmless in any amount are safe in limited amounts, and that such use should be permitted under regulations setting tolerances that would protect public health. On July 12, 1960, the President signed the Color Additives Amendments to the Act.

The Color Additives Amendments deal with all colors, whether or not of the coal-tar type, and provide for batch certification where necessary. They authorize tolerances where necessary to ensure safe use of colors.

The so-called Delaney Clause, similar to that of the Food Additives Amendment, which had caused much controversy during legislative hearings, was included in the new Amendments. Under this clause a color additive is unsafe if it is found to induce cancer in man or animal.

The Amendments became effective on enactment, but an interim period of two and one-half years is provided during which commercially established colors may be provisionally listed while testing is carried on, with a view to securing permanent status.

Drugs in Cosmetics

With the general acceptance of cosmetics, their popularization has been aided greatly through the products of synthetic chemistry. The demand for adding these newer materials to cosmetics has outstripped research in the fundamentals of skin physiology and related problems in skin pharmacology and toxicology. Often such products extend beyond the realm of cosmetics and are also drugs. By legal definition, skin rejuvenators, wrinkle eradicators, and other products claiming to affect the structure and function of the body are drugs and must be labeled as drugs. However, a variety of products that are sold as cosmetics contain drugs. Among them is neomycin, used in deodorants after clearance through the new-drug procedure. Such uses should be undertaken, in our view, with great caution since cosmetics are used widely and frequently. There are many other such combination products. It is to the interest of the industry as well as the consumer that such products be safe, effective, and honestly labeled.

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3. DEODORANT
Neutralizes perspiration acids

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Soothing
Mildly astringent

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Screens out sunburn rays

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Poison Control

The rapid introduction of household chemicals that are not subject to Federal regulation has been responsible for many cases of accidental poisoning. This encouraged enactment in July 1960 of the Federal Hazardous Substances Labeling Act. It applies to household substances that are toxic, corrosive, irritant, strong sensitizers, flammable, radioactive (if named by regulation), or pressure generators, if such articles may cause injury or illness from customary or reasonably foreseeable use, including ingestion by children. However, cosmetics are excluded under this Act. Since ingredients do not have to be revealed in the labeling of cosmetics, physicians are constantly regretful that they do not have this label information to assist them in treating persons who have accidentally ingested cosmetics.

Weaknesses of The Cosmetic Law

Since the Act is a vital and living instrument, it should be amended when necessary to serve the American people, especially for their health protection. Many hold that cosmetics should be pretested for safety before marketing, as is now done for new drugs, food additives, and color additives. Through the experience gained from years of administering the Cosmetic provisions of the Act, we have encountered many serious events because of the presence of unsafe and untested constituents in the products. Too often, any legal actions we bring can only correct errors after the consumer has been injured.

As we look at the Act we note that at the present time there is no requirement that a cosmetic that is not also a drug be pretested and studied and the data as to safety be supplied to the Food and Drug Administration, as is required in the case of new drugs. Most manufacturers are aware of the risks inherent in failing to pretest their products, and are careful to evaluate their findings prior to marketing cosmetics, and yet we encounter products that injure users.

Recently, a home permanent-wave lotion was introduced on the market. This product contained a shampoo neutralizer solution. It was in use only a short time when women began to have severe and painful eye irritation. The severity of the reaction was so marked that the product had to be withdrawn from the market, and public warnings were issued promptly. No permanent damage to users has been reported from this product, yet it was responsible for such extensive damage that it was necessary to warn consumers of its potential harm. This is only one example of injuries resulting from this gap in consumer protection of many I could mention.

While we are talking about health needs, there is also an auxiliary health need to be met. The view continues to be presented for establishing a national reporting system to determine the frequency and extent of allergic and other skin manifestations arising from articles applied to the skin. Such data would be-

(*Continued on page 374*)

Management Forum

BY FRANCIS CHILSON, Sc.D.
PROFESSIONAL ENGINEER

Enemies of Free Enterprise

With great distress I read in *The New York Times* of February 7, 1961, of the conviction of seven top officials of our leading electrical manufacturing companies for violation of the anti-trust law. These companies included General Electric, Westinghouse Electric, Allis Chalmers, Cutler-Hammer Inc., McGraw-Edison, Wagner Electric and Maloney Electric, and 23 others. The six companies mentioned were fined almost a million dollars for criminal conspiracy to fix prices on government bids, and the five officials, all vice-presidents and all apparently honorable men (according to their lights), were sentenced to 30 days in jail and fined varying substantial amounts. Altogether, 29 firms were involved, with total fines of $1,924,500.

At the end of their sentences these men will emerge with criminal records that they can never erase. Who will pay for that? Will they receive from their employers fat bonuses and stock options to erase the prison smell from their nostrils? Or, will they be fired for getting caught?

Each of their lawyers said that his client was "an honorable man—a victim of corporate morality." Does the organization man have to commit a crime to hold his job? *And they all knew* they had committed a crime; they all pleaded guilty. Why should "corporate morality" be a term of oppeobrium?

According to the Times, Judge Ganey, who conducted the trial, said, "The real blame is to be laid at the doorstep of the corporate defendants and those who guide and direct their policy." He said further that the individual defendant was "the organization man, the conformist, who goes along with his superiors and finds balm for his conscience in additional comforts and the security of his place in the corporate set-up." What a shameful condition it is that this should be so!

But no mention was made by the judge of the larger aspects of the case. These corporations and these men, in this instance, have proved themselves to be enemies of the capitalistic system. They have given to the communists striking proof of the corruption that the communists say is, and by its very nature must be, inherent in the capitalistic system.

They have given powerful ammunition also to the labor unions, which always have insisted that corporate management is inhumanly selfish and essentially dishonest. These corporations and these men would undoubtedly never cheat each other; they were convicted for trying to cheat the government. And that means all of us.

I think Judge Ganey's sentences were very mild. In my opinion, the fines should have been ten times as much—not because of the damage done to the government in this one instance of conspiracy to fix prices, but for the damage done to the whole political and economic system upon which our government is based, and which we are trying so desperately to defend in the eyes of a critical and cynical world.

If I had been the judge, I not only would have jailed the purblind minions of the several corporations involved, I would have tossed into jail with them their presidents, board chairmen and a few directors, too.

Believe me, if corporate officials, executives, and union leaders as well, cannot be made to realize that they are working, not alone for their own corporate enterprises, but also for the maintenance of the entire free enterprise system, then that system must eventually fall, and the bright American dream will be extinguished in a dark age of totalitarian negation of individual freedom.

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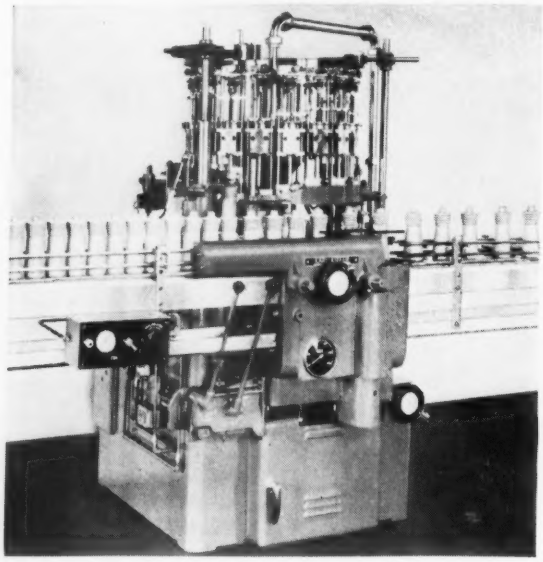
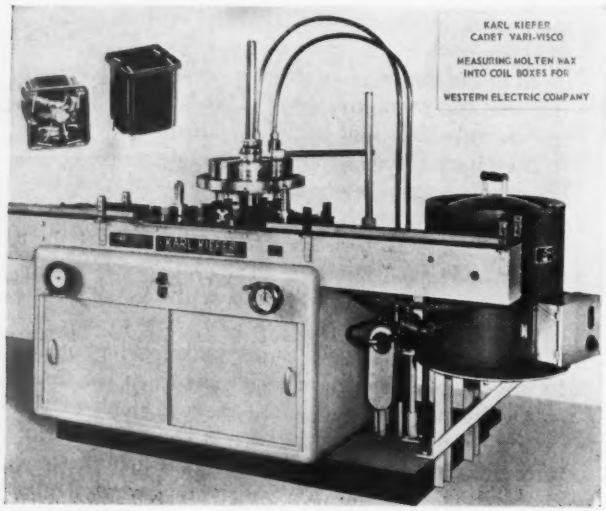
Fill containers WITHOUT the use of a SEAL. Amazing accuracy in PLASTICS, in glassware, in F style or #10 tins. Any speed. Fillers in a number of popular custom sizes.





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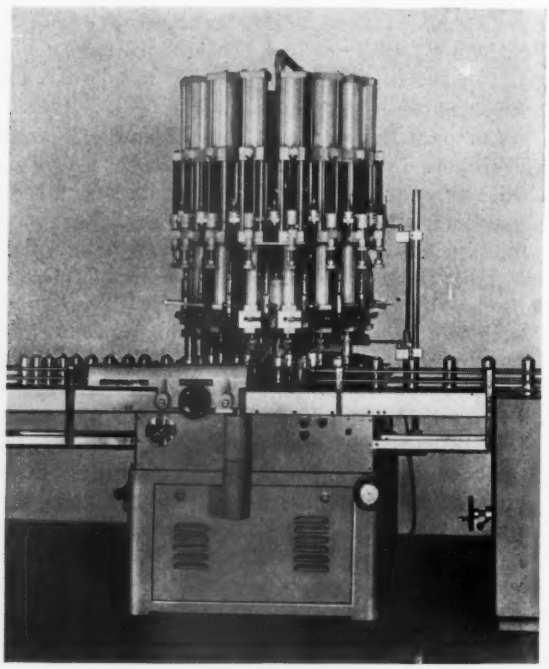

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with the proceeds! For IBM has gone into sex! Not for a moment do I credit IBM with the population explosion; they haven't got into sex that deeply yet. But they will. As you know, they've built machines that have memories and know how to THINK. Obviously it is a much simpler engineering task to build a machine for sex, because in such affairs it is not necessary to think. In fact, it is better not to. You might worry. Lord Chesterfield made this plain in a letter written to his son before the beginning of the Industrial Age.

Lest you think I am spoofing I refer you to page 89 of the February 1961 issue of the *Reader's Digest*, which describes the work of the Scientific Marriage Foundation, which in three years, has *scientifically* arranged over 5,000 marriages. The "lonely hearts" male and female fill out application blanks with all sorts of very personal information. This "come hither" data is transferred by the Foundation to punch cards, and then—in the words of *Reader's Digest:* "All of this material is forwarded to foundation headquarters where the initial 'mating' is done by an IBM machine."

There you have it! Mating becomes mechanized. Sex is automated. No more birds and bees stuff. The next time your little son wants to know where his baby sister came from, just tell him IBM!

I thought I was percipient a few years ago when I suggested the possibility of designing an electronic diagnostic machine to replace incompetent diagnosticians. But IBM is more practical than I and, as always, keeps its eye on the biggest market. (I understand that sex is more prevalent than sickness.) Hence the Sex Machine. The prospect for IBM stock staggers the imagination!

Definition

"A doctor is a man who pours drugs of which he knows little into bodies of which he knows nothing."

Voltaire

Slogan for Metrecal

"Hope is a light diet but very stimulating."

Balzac

Depreciation

I was delighted to see in a recent issue of *Newsweek* that Henry Hazlitt had taken up the cudgels for liberalized depreciation write-offs. He pointed out that one reason for the swift economic comeback of the Germans was that their government allowed a 50 per cent write-off on new plant and equipment for the first year of operation. The Japanese have done likewise. I have advocated for years that depreciation of plant and equipment be taken as a percentage of sales, on the ground that, when times are good and sales consequently high, plant and equipment are utilized to a greater extent and hence wear out to a greater extent, and, therefore greater write-offs should be allowed in good times than in bad. There's another important reason for this: The current depreciation rates of 3 per cent for buildings, 10 per cent for mechanical equipment, and 5 per cent for building and process equipment are not high enough to keep pace with increasing replacement costs. For instance; in 1936 a first-class, air-conditioned pharmaceutical plant could have been built in the New York area for $4.50 per square foot. The same building today would cost $14.00 per square foot—almost three and one-half times as much. Now the manufacturer who had built such a building in 1936 would today, 24 years later, have in depreciation reserve at 3 per cent per annum only $3.24 per square foot to replace a building that would cost $14.00. So too with machinery. An automatic labeller that 20 years ago could be bought for $3,500.00 now costs $12 or $15 *thousand*.

The government should allow a change in depreciation rates in all fairness, because, in the long run, it would not affect the government's tax-take at all.

The Sacredness of Individuality

Those of you who have read this column for some time know that I have always been a fighter for the rights of individuals—especially the mavericks without whom no progress ever was or ever will be made. You know I hate the terms "organization man," "togetherness," "Group effort," "bureaucracy," "red tape," and all the other terms and "isms" that denote man in the mass being led according to a book of rules like sheep. At times it has seemed to me that mine was a lonely voice, raised like King Canute's, bidding the tides stand still. So, when a great and powerful voice like that of Henry M. Wriston, president emeritus of Brown University, calls out with the same warning cry, I feel that I have not been crying in vain. In the May 10th issue of *The Saturday Evening Post* Mr. Wriston had this to say: Listen!

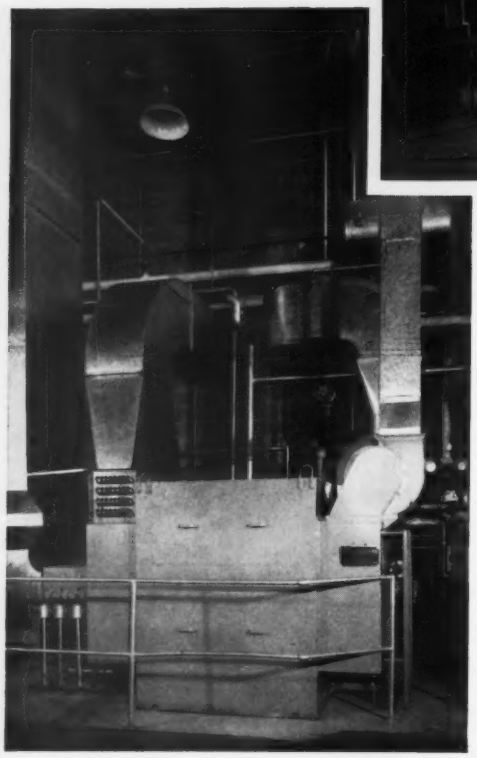
"Moreover, the tendency to overwhelm the individual appears also in private organizations, which, like government, have grown greatly in size and influence. A business corporation may be so bureaucratized that only an 'organization man' can survive. Corporate policy may oppose taking 'controversial' positions on public questions or actively participating in a political party, particularly one not favored by the management. In dozens of intangible ways such policy may restrict freedom. All sorts of devices, even including "benefits," may reduce the mobility of the individual and virtually tie him to his place of occupation. The tendency of every organization to eat up its members is perennial and must be fought every step of the way. . . .

When any of these things happen, the state, itself curbed by the Bill of Rights, must curb the new threat. Paternalism upon the part of the state is vicious. It is no less intolerable on the part of a private organization. There is no doubt that in the 1960's the individual needs to be shielded from the

NO HEADACHES

from unwanted moisture

This Lectrodryer makes 15,680 cubic foot tableting room at Whitehall Pharmacal Company independent of outside weather conditions.

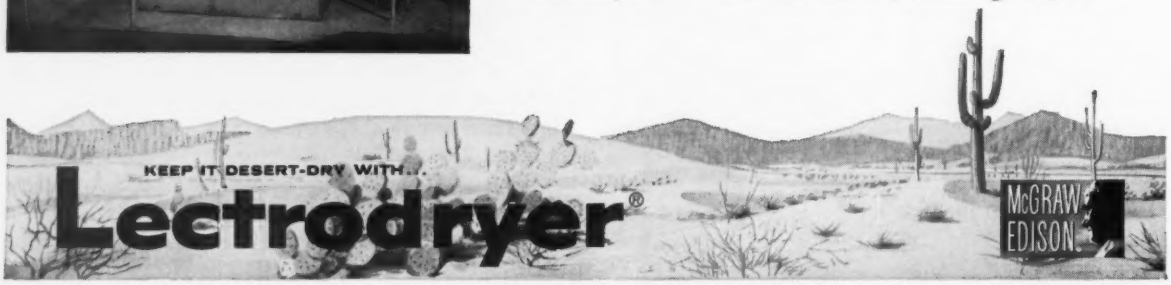


Whitehall, makers of ANACIN, dehumidify with **Lectrodryer***

Tableting at Whitehall Pharmacal Company, Elkhart, Indiana, is done in a DRY atmosphere. A Type CHO Lectrodryer holds this room at 20% relative humidity at 70°.

No moisture to contaminate fine products or slow their flow.

Your moisture problems may be solved equally easily with Lectrodryers. *Case History Sheets,* telling how various types of drying jobs have been handled—atmospheric drying, compressed air and other gases—will be helpful to you. For copies, write Pittsburgh Lectrodryer Division, 309 32nd St., Pittsburgh 30, Pa.



tyranny of organizations. Any institution—political, social or economic—that tends to stifle individual initiative or prevent individual innovation is a force for making the United States second rate and regressive.

The Bill of Rights was not designed for corporations. Free enterprise is only one fruit of liberty, not its root; property and business exist for the benefit of individuals and have no inherent rights. Protecting individuals from the state did not destroy the state; it merely forced government to live with the democratic process. Protection from private threats to individuality will not destroy corporations or unions or schools, though they would have to conform to democratic requirements. Change is the order of life. As private institutions grow with change, they can meet changed circumstances.

"The basic natural resource of the United States is its people. It follows inescapably that the first national goal to be pursued—at all levels, Federal, state, local and private—should be the development of each individual to his fullest potential."

You Are a Statistic

You, my friend, may have a very important job. You may be very highly regarded in your community. You may be very highly regarded in the industry. You may be a very modest sort of person but still you may cherish a feeling of importance. You may be, on the other hand, an egotistic sort of person who doesn't mind flaunting his own real or imagined importance. But you and I like all other men, regardless of our accomplishments or importance, are only vital and not very viable statistics.

When you lay down your responsibilities and cash in your chips, the following conversation will take place at the Men's Bar at the Waldorf—or at one of the numerous convention bars:

"Say, Bill. I just heard that Joe Doakes dropped dead."

"Izzatso? Nice guy. Let's have a drink."

That will be your requiem—and mine, and we'll have to be well known to get that much. So the next time your bump of self-importance begins to swell remember you are just a statistic.

High-Speed Disperser

Charles Ross & Son Co., Inc., 148-156 Classon Ave., Brooklyn 5, N. Y., has developed a new large-capacity machine, model #140DI, that mixes, disperses and deagglomerates products of medium or heavy paste consistency up to 60,000 Centipoises in any capacity between 100 and 800 gallons. Material is first subjected to tremendous direct impact and intense abrasive action within the millhead, then jetted out in thin streams from the slow moving surrounding material for greater attrition and hydraulic shear. These larger and heavier-duty machines center in tanks up to 6 feet in diameter and raise from tanks up to 6 feet in depth.

Dry Powder Conveyor

Moyno Pump Div., Robbins & Myers, Inc., Springfield, Ohio, has developed a new method of conveying dry, powder-like materials through a totally enclosed piping system, using their progressing cavity pump. Performance capacities to date have ranged as high as 24,000 lbs. per hour.

The pump will function effectively in runs up to 200 feet or longer and is capable of vertical lifts of more than 75 feet. The principle is similar to that of a precision screw conveyor, with cavities being formed between the helical rotor and the double helical stator during rotation, moving toward the discharge end.

Pilot-size Molecular Still

Arthur F. Smith, Inc., 311 Alexander St., Rochester 5, N. Y., has built a new 12 in. Rota-Film molecular still, with three complete distillation units coupled in series capable of acting as preheaters, degassers, and strippers. The still recovers low-boiling components continuously, distills the major compound, and provides a complete automatic operation by recorders monitoring each control factor. It is effective in processing materials of molecular weight 250 to 4000, and can be operated by semi-skilled operators with a capacity of 10 to 300 lbs. per hour. It is constructed of type 316 SS.

Electric Pallet Truck

Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich., now has available a new economy model, electric-powered pallet truck of 3000 lbs. capacity. The Powrworker 30P is equipped with pallet forks in lengths of 30 to 54 in. in 6-inch. increments, 7 in. wide, with a new disc-type pallet entry device. When fully loaded, it travels at 2.7 mph, and can negotiate a 15 per cent grade.

The truck has two forward and two reverse speeds, and a 4 in. vertical lift and lowering, which are all controlled from fingertip switches in the control head on the steering handle.

Dimensions are: 32⅝ in. high; 32 in. wide. and 73⅝ in. long (with 48 in. forks).

Automatic Container Tester

The MRM Co., Inc., 191 Berry St., Brooklyn 11, N. Y., has developed a new automatic container tester that detects imperfect bottles or other containers before filling. It may be used on any conveyorized line with gravity, pressure, or piston fillers. A vacuum member grasps each container, lifts it over a gap in the conveyor, and deposits it on the other side for entry into the filling machine. Because the vacuum member cannot lift a bottle that is not air tight, such containers fall through the conveyor gap into a receptacle. It may be used with glass, metal, or plastic containers of capacities ranging from fractional ounces through gallons and will operate at conveyor speeds of up to 300 units per minute.

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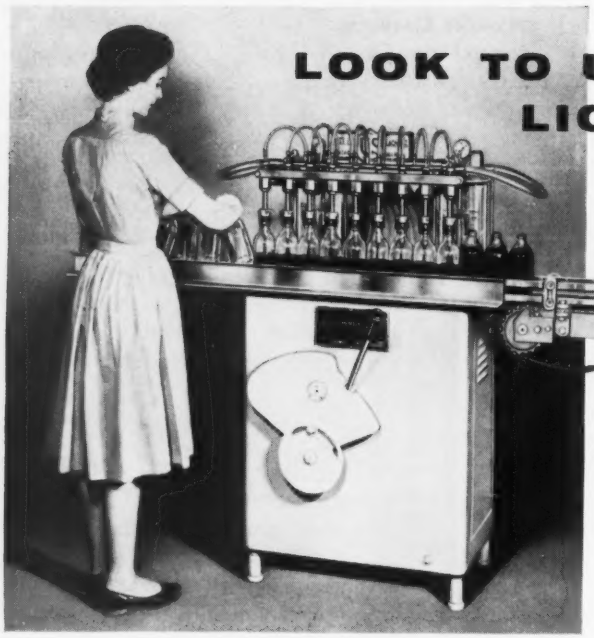

- *Fully Automatic*
- *Semi Automatic*
- *Hand Fillers*

YOU CAN spark your entire packaging operation with the *right filler*. Anything short of that can snarl your packaging pace. With a half century of experience in liquid filling, our engineers can specify filling procedure that will head your packaging operation most economically. Tell us your requirements, our recommendations will not obligate you. Please send sample of product, a dozen containers of each size to be filled and advise desired filling rate per minute, hour or day. Address our home office.

US PACKAGING ENGINEERS

Multiple, Semi Automatic

MODEL B-49 STRAIGHTLINE VACUUM FILLER
For liquids and semi-liquids. Fills 4 to 9 containers simultaneously; up to 50 small containers p/m. Lever engages and disengages filling stems, otherwise operation is automatic. Adjustable for container heights up to 14"; miniature and standard bottle finishes, gallon F-style cans, wide mouth jars. Stainless steel is standard; plastic for filling special solutions on order. Discharge conveyor optional. Special requirements engineered. For quotation, please state requirements or write for "Bulletin B-49".

Steady Filling

MODEL B-2
VACUUM FILLER
Fills 2 containers while 2 filled containers are being removed and 2 empties loaded. Thus, filling is continuous. Handles containers up to 4¼" dia., up to 13" hi. Stainless steel construction. Plastic available. Will fill directly from drum or supply container on the floor. Portable. Write for "Bulletin B-2".

For All Liquids All Containers

Also for foamy products that do not permit agitation. Stainless steel filling tubes. Fill controlled automatically. Float regulates product supply in glass lined tank. No power required. Write for "Siphon Bulletin".

E-Z Air Cleaner

Fast growing importance of air cleaning new containers makes this the ideal companion unit to semi-automatic fillers. Write for "E-Z Bulletin".

HAND FILLER. A precision unit of high quality for efficient hand filling. Write for "Hand Filler Bulletin".

U. S. BOTTLERS MACHINERY CO.

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DENVER - PORTLAND, ORE. - KANSAS CITY - TUCSON - JACKSON, MISS. - ATLANTA - MONTREAL
TORONTO - VANCOUVER - WINNIPEG - SANTIAGO - SAO PAULO - HONOLULU

Small Aerosol Packaging Line

The Kartridg Pak Co., 800 West Central Road, Mount Prospect, Ill., has developed a small Aerosol Packaging line consisting of a concentrate filler, crimper for standard 1-in. valve, and propellant pressure filler with accumulator and propellant handling pump, mounted on a stainless steel table in a 30 in. by 6 ft. floor space.

Manual Multi-Pack Machine

Continental Can Co., Folding Carton Div., 530 Fifth Avenue, New York 36, N. Y., is leasing its new manually operated machine, Jak-Et-Pak Junior jig, which offers packers an economical way to get into wrap-around multiple packaging.

The machine, operated by a foot pedal, can run 10 to 12-2 x 3 in. six packs per minute. Can and bottle sizes from 7 oz. to 16 oz. can be packed on the jig.

Automatic Marking Machine

Markem Machine Co., Keene 60, N. H., has developed an automatic marking machine that chute feeds, prints, and ejects disposable plastic medical syringes at speeds up to 3000 per hour. Driven by a ¼ hp motor, the Model 20A machine marks cylindrical objects from ⅛ to 21¼ in. in diameter with imprints up to 2⅞ x 6 in.

Specialized Filler

Elgin Manufacturing Co., 200 Brook St., Elgin, Ill., has developed a six-cylinder automatic straight-line filler model specifically designed for liquid and semi-liquid products in 1½-oz. flat oval bottles. The filler, using a variable speed drive, with an adjustable fine fill attachment, moves 6 rows of containers along a solid stainless steel bar indexing slide table with double-life station for purging and filling. It occupies 90 x 42 in. of floor space.

Laboratory Mill

Pallmann Pulverizers Co., Inc., 315 Newark St., Hoboken, N. J., has developed a small version of their standard production units, which will crush, pulverize, shred, mix, and, otherwise reduce to any particle size, dry materials that are soft to medium-hard and do not exceed ⅝ in grade, without the use of screens or sifting devices.

Equipped with a 2¾ hp motor running at mill speed of either 4500 or 9000 rmp, the mill uses a 7⅛ in. grinding chamber that will handle quantities of from 100 grams to 44 pounds in a single pass. Continuous size reduction is also possible.

Control System

Flo-Tronics, Inc., Electronic Controls Div., 712 West Ontario Ave., Minneapolis 3, Minn., has made available a new centralized, fully automatic control system for package, part, unit, or container conveyor lines. The Mag-Pac can be operated from a central dispatcher unit, or by remote punch card or tape command. Principle units include dispatcher, marker, tally, reader, coordinator, and optional selector.

Cooler and Sifter

Young Machinery Co., Muncy, Pa., has developed a new sifter, the gyro cooler, which cools and sifts simultaneously. The enclosed double-balanced drive mechanism is used: the gyratory motion at the feed inlet end of the machine provides maximum contact on the cooler coils, and the slight slope and oscillating motion at the discharge end gives continuous flow to the material. Cooling is accomplished by thermo coils, formed on the underside of the flat pan, which utilize a continuous flow of cold water or brine to carry away the heat from the product.

Bottle Dry Cleaner

Thomas Hill Engineering Co. (Hull) Ltd., Beverley Road, Hill, Yorkshire, England, manufactures the "airline" air jetting unit, a fully-automatic machine for dry cleaning high outputs of narrow-neck bottles. Air jets and dust extractors are inserted deep inside the moving bottles.

Portable Price Marking Machine

Avery Label Co., 117 Liberty St., New York, N. Y., has developed a portable price marking machine capable of imprinting 150 pressure-sensitive labels per minute.

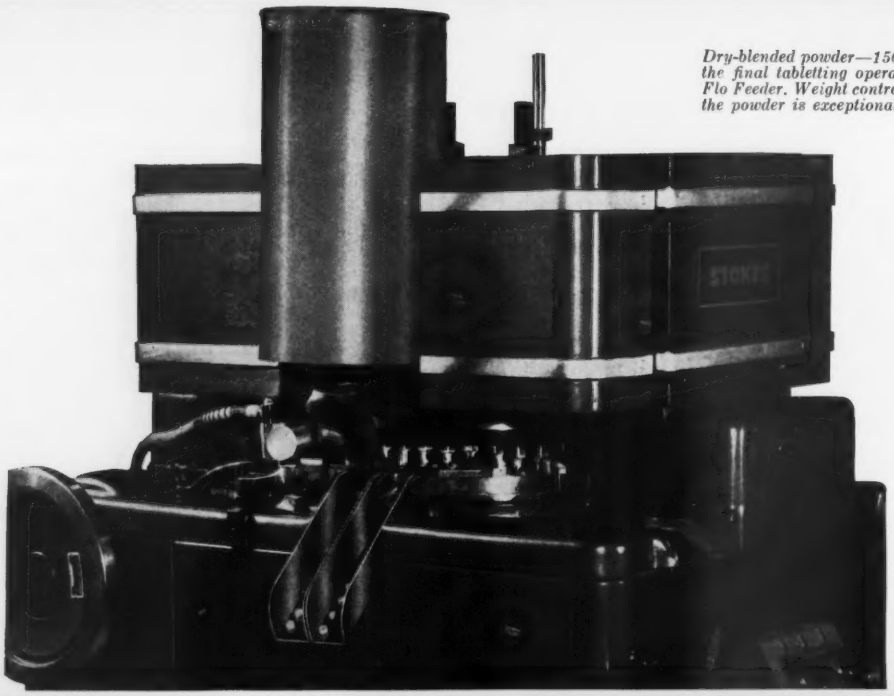
Demineralizer

Barnstead Still and Sterilizer Co., 119 Lanesville Terrace, Boston 31, Mass., has developed a new replacement cartridge demineralizer with a capacity of 25 gallons per hour. It consists of a pressure-type cartridge holder equipped with a direct reading purity meter calibrated in parts per million impurities and ohms electrical resistance. The meter indicates water purity at all times and also shows when to replace cartridge.

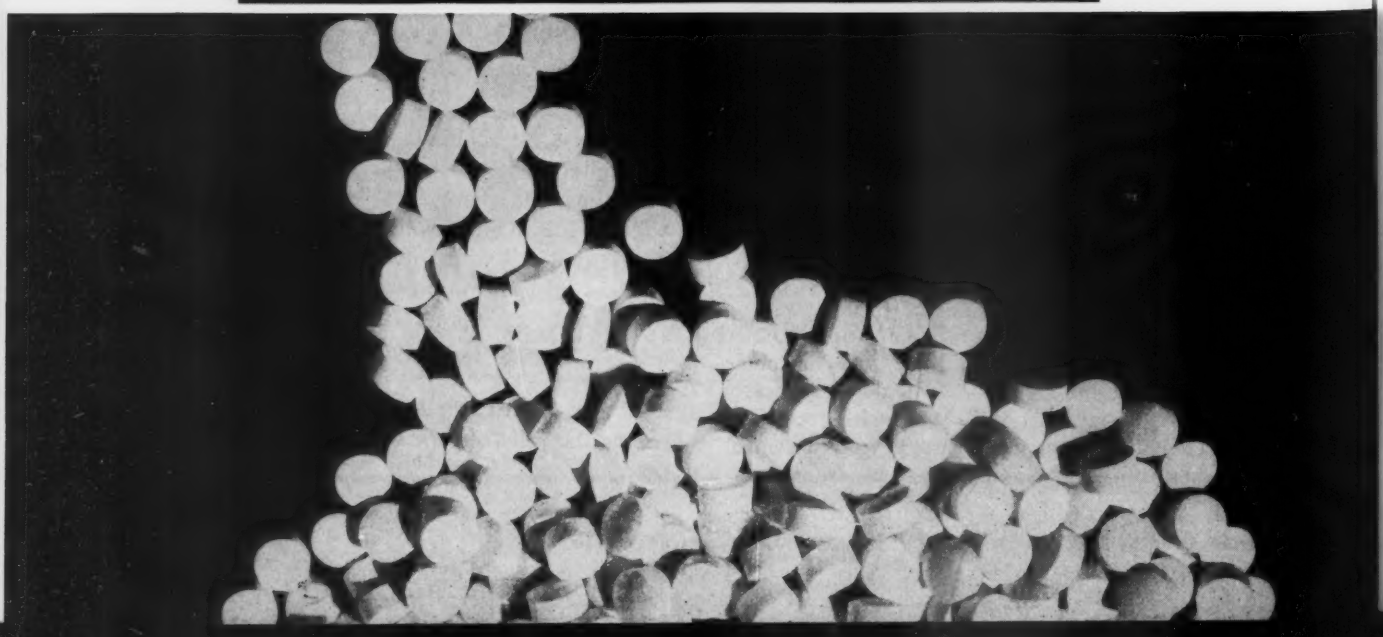
The model BD-5 can be operated under pressure up to 100 pounds per square inch. Cartridge holder is steel, lined with polyvinyl chloride, and the head is faced with tin. It is 6 x 8 x 26 in.

Positive Adjustment Controls

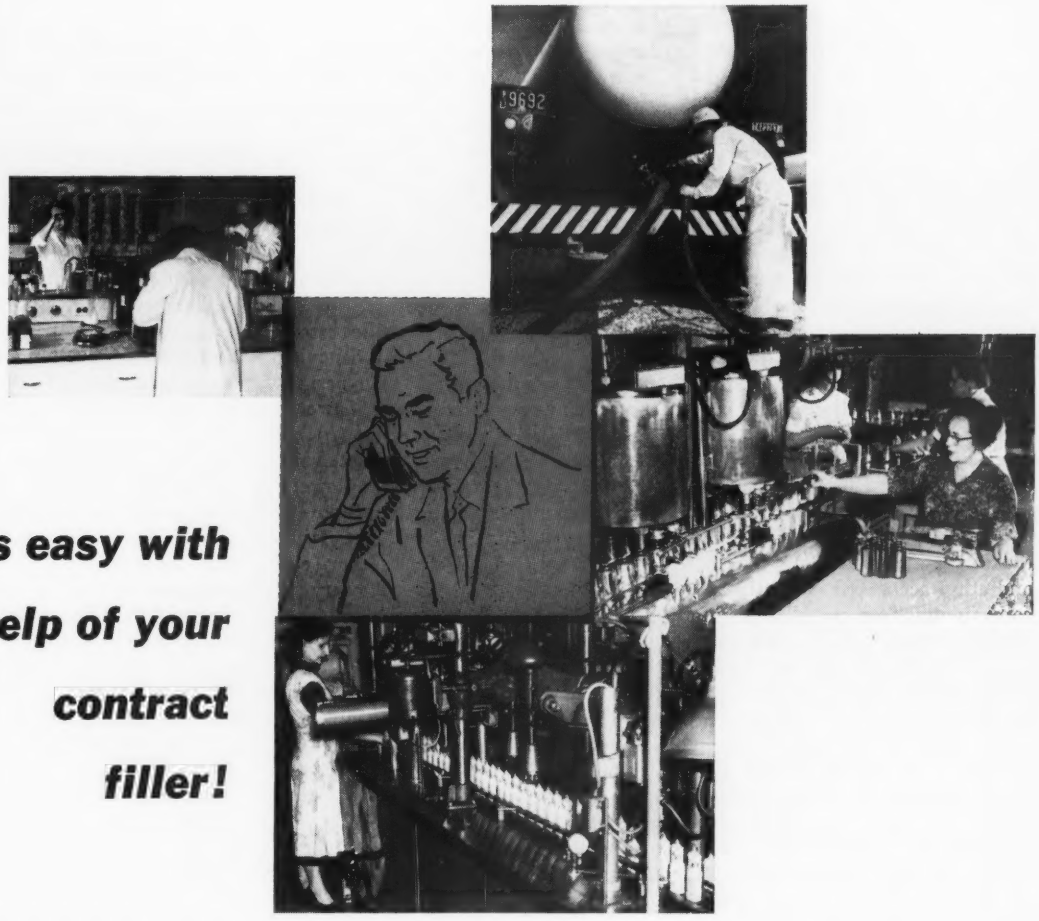
Charles Ross & Son Co., Inc., 148 Classon Avenue, Brooklyn 5, N. Y., has introduced high-speed three-roll mills fitted with roll pressure recording gauges and automatic thermostatic-controlled water inlet valves. Mills in all sizes from 4½ x 10 in. to 16 x 40 in. are provided with automatic thermostatic control of main inlet or water cooling line for limiting the heat of rolls to a pre-set temperature between 40° and 180° F. When roll temperature exceeds the temperature it is set for, the water inlet valve is automatically opened to allow greater water cooling to reduce the roll temperature to the pre-set temperature.



Dry-blended powder—150 to 200 mesh—can be fed to the final tabletting operation with the Stokes Force-Flo Feeder. Weight control of tablets compressed from the powder is exceptionally accurate.



Take a giant step into aerosol packaging



...it's easy with the help of your contract filler!

Near you there's an aerosol specialist . . . a contract filler who will take your aerosol from product idea to marketplace. He has an investment in specialized equipment that would cost you tens of thousands of dollars to duplicate and a comprehensive knowledge of aerosol formulation and packaging. He will be glad to put this knowledge and equipment to work for you. The contract filler can get you started in aerosol packaging without your having to invest a penny in plant, production equipment or specialized personnel!

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Perfumer's Shelf

Aromatics Volatility

Vapor pressure data are of considerable importance not only to those engaged in distillation and fractionation but also to perfumers. The boiling points, especially at reduced pressure are a measure of the vapor pressure at ordinary temperatures.

The highest boiling point corresponds approximately to the lowest vapor pressure—thus indicating lowest volatility and best persistence.

One is thus able to grade the odorants under consideration from the very ephemeral methyl formate and ethyl acetate, through the more conventional "top notes" and intervening middle notes, down to the so-called "fixatives" such as vanillin, the coumarins and synthetic musks. For that reason F. V. Wells (*S.P.C.* 34: 75, 1961) gives a table in ascending order of boiling points at reduced pressure, as well as alphabetically. Thus the very volatile acetaldehyde heads the list and the persistent synthetic musks come at the end of it. Such an arrangement does not, of course, take into account other determining factors of lasting odor strength, e.g. strength of odor, physico-chemical behavior in a given environment, and possible chemical reactions if used as a constituent of a blend or mixture of odorants.

The type of information given in these tables is precise (so far as it goes) but limited in its application. What is further required by the perfumer is (*a*) additional data of the same kind, relating to other perfumery chemicals, and (*b*) actual experience not only in the use of such chemicals but particularly in the use of essential oils. A helpful guide to the latter branch of the perfumer's craft has been compiled by E. S. Maurer ("Top Notes in Perfumery") and published in his book, "Perfumes and their Production."

Perhaps one of the most helpful and stimulating, though necessarily rather complex, studies of the essential oils from the perfumery compounding point of view was written many years ago by Albert Ellmer. In this study, Ellmer classifies essential oils according to their behavior as (*a*) essential oils with a permanent odor type—e.g. citrus, flowery, rooty, balsamic and amber; (*b*) essential oils with odors that vary within one group, such as flowery (e.g. changing from linalolrose to rose-lavender); and (*c*) odors that vary from one group to another (e.g. from fruity to flowery, flowery to balsamic.) This is chiefly another way, of course, of looking at the actual constituents, known and unknown, of each oil. While Ellmer's arguments and the tables that he compiled at that date are of considerable interest, even though somewhat confusing, the fact emerges that nothing can replace, in perfumery, actual experiments and the knowledge that can only be won by the empirical approach.

Perfuming Shave Preparations

While it may be best to stick to the odor types popular for men's toiletries, such as lavender, fern, leather, eau-de-cologne, fougere or spicy, according to V. Vasie (*Manuf. Chem.* 31: 439, 1960), it is always possible to introduce a novel note into shaving preparations. Men still go for so-called "masculine" scents, but they are beginning to accept other fragrances. Shaving preparations now contain single floral scents as well as floral bouquets. What they once considered purely feminine-type odors are now being accepted with minor, if any, modifications.

Pre-shave preparations can be perfumed with 0.25 to 0.5 per cent of a suitable compound. If a small amount of terpineol (not over 0.1 per cent) is used to cover the soap odor, the lower percentage of perfume will be adequate. About 0.1 per cent menthol will impart a pleasant cooling effect to the shave.

The perfume in shaving soaps must withstand the alkaline reaction without changing with age. In the manufacture of any solid shaving soap, the perfume is best incorporated during the milling process. Shaving soaps can be perfumed with 0.5 per cent to 1.5 per cent of a suitable perfume compound.

In perfuming *shaving creams*, rose and lavender have long been the conventional choice, but there is no reason why other suitable perfumes should not be used.

In common with liquid soaps, lathering shaving creams require fairly heavy perfuming as small amounts of perfume have little effect. Usually 0.5 to 1.0 per cent of perfume compound is required to produce a well-scented shaving cream.

The perfuming of *shaving powders* is achieved by triturating a small quantity of the powder with the perfume compound and this over-perfumed proportion should then be blended with the rest of the powder mass. Sifting is advisable to avoid lumping.

The usual range of concentration employed is 0.5 to 1.5 per cent of perfume compound.

The compounding of perfumes for shaving soaps, creams and powders is particularly difficult, for the perfume must be fully adapted for the purpose. The perfume compound must be tested for alkali resistance and compatibility with soap. Another consideration always to be borne in mind is the fact that the skin of the face is particularly sensitive, and that irritating effects have been observed in connection with aromatic chemicals, such as eugenol, helio-

tropine, etc. Finally, shaving soaps are usually white, so chemicals which are apt to cause discoloration, such as indole, vanillin, isoeugenol, methyl anthranilate, etc., should be avoided.

Perfume compounds for use in lather shaving preparations must be well fixed. Among fixing agents, resinoids, and other resinous products are of paramount importance for this purpose.

In compounding a perfume for a *brushless shaving cream*, the same comments as for vanishing cream perfumes apply. In selecting a perfume it is necessary to avoid the sweeter floral perfumes which would be regarded as effeminate, but one does not need to go to the other extreme and choose a medicated scent. Lavender, fougere and spice bouquets are particularly suitable for perfuming of brushless shaving creams.

The brushless type of shaving cream requires less perfume than the lathering type. A concentration of 0.2-0.4 per cent of perfume compound should be adequate.

The perfumes for shaving creams of the *acrosol* type should be compounded very carefully. The perfume compound should be designed specifically for a given cream and its ingredients chosen carefully to avoid compatibility difficulties. One of the chief factors in compounding is to use components which are highly soluble in aerosol propellants. Great care should be exercised in using all types of resins, such as labdanum, opoponax and oak moss, to avoid difficulties with respect to solubility, but it does not mean that they must necessarily be completely avoided. Balsams and crystalline substances such as coumarin, heliotropin, vanillin, synthetic musks and many others should be used with caution. All those components can and do sometimes precipitate out of solution when in the presence of liquid propellants.

In order to prevent precipitation, dipropylene glycol is often added to the perfume compound to the extent of from 5 to 15 per cent. It is an excellent solvent for most perfume ingredients as well as for propellants. Propylene glycol can also be used for this purpose, but dipropylene glycol is the better solvent.

Lavender, spice and fougere fragrances have long been popular and single florals have also obtained some degree of popularity.

After-shave lotions frequently contain menthol for cooling. Its concentration can be as low as 0.005 per cent or as high as 0.2 per cent. About 0.1 per cent menthol gives ample cooling to allay the pain of a "close" shave. When higher concentrations are used, menthol has an undesirable rubefacient effect and its odor becomes overpowering, causing difficulty in perfuming the product.

The perfume plays an extremely important part in the after-shave lotion and the selection of a suitable perfume undoubtedly is the most difficult aspect of the formulator's task. The usual considerations of freedom from irritation, sensitivity and sensitization apply with special weight in a product used daily on the freshly-shaven face, but the question of immediate and continued consumer acceptance by its odor is of primary importance. The odor should be a bracing one and should be acceptable not only to the male user but to the opposite sex as well. Men prefer clean, fresh odors with an "outdoor" character. Among those popular for after-shave lotions are fougere, lavender, spice and eau-de-cologne types. In addition, some oriental, tobacco and leather notes have proved intriguing to prospective customers.

The usual range of concentration employed is from 0.5 to 1.0 per cent, depending on the nature of compound and the effect desired.

After-shave lotions which contain below 40 per cent by volume of alcohol are difficult to perfume by simply dissolving it in the lotion, because many perfume compounds contain materials with limited solubility. To overcome this, solubilizers can be employed to produce clear solutions of perfume compounds in after-shave lotions with low alcohol content. The amount of solubilizer depends upon the type of perfume used as well as on the solubilizing effect of the solubilizer. For most perfume compounds, three to five parts of solubilizer will solubilize one part of perfume, although with certain compounds as much as eight to nine parts of solubilizer may be necessary to obtain a clear solution. In order to increase the solubility, a co-solvent such as diethylene glycol monoethyl ether is recommended.

Decolorizing Oils

Natural perfumes have a particular fragrance which artificial synthetic perfumes cannot imitate. Though many kinds of perfumes are manufactured synthetically, no expensive cosmetics can neglect natural perfumes in their formulas. Most natural perfumes, however, are red-brown or dark-brown colored and this disadvantage restricted their broader application and utilization in the cosmetics industry.

The methods which have been used to decolorize absolutes may be classified into the following five groups:

1. Steam distillation in vacuo or with superheated steam. 2. Co-distillation, in vacuo, with polyalcohols (such as glycerol or ethylene glycol) or with phthalate. 3. Irradiation with ultra-violet light without affecting odor, currently used for lavender oil or eucalyptus oil. 4. Bleaching earths. 5. Inorganic or organic salts or their acid salts.

From the peel of *Citrus tankan* Hayata, a species of orange widely cultivated in Taiwan, a dark red-brown orange oil was manufactured by pressing with a roller.

In the present work by Ping-Hsien Yeh (*P. & E.O.R.* 52: 86, 1961), the decolorization of this oil with a variety of chemicals, including absorbing agents, acids, bases, salts, oxidizing agents, and reducing agents has been investigated.

Among the adsorbing agents tried, active carbon, was the most powerful one. In order to decolorize to pale yellow, however, the oil was treated with the active charcoal at room temperature for more than one month and the yield of the decolorized oil was only 40-50 per cent, which is not satisfactory.

Satisfactory results were obtained, without affecting an appreciable change in odor, by treating the oil with basic hydrogen peroxide solution or potassium permanganate solution.

The decolorization of dark brown 'absolute' flower oil of *Citrus grandis* was also tried with absorbing agents, acids, basis, salts, oxidizing agents, and reducing agents. Alkaline hydrogen peroxide and zinc dust in acid medium showed some decolorizing action.

The pale red-brown Taiwan peppermint oil was also decolorized with the above reagents.

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Compounder's Corner

Lanolin Peroxide Value

The results of an investigation by E. W. Clark and G. F. Kitchen (*J. Pharm. Pharmacol.* 13: 121, 1961) show that the wool fat on the fleece had a high peroxide value, but that when the fat was emulsified in the scouring liquor (containing soap and sodium carbonate) the value rapidly fell, reaching a very low level in the grease recovered from the centrifuges It seems probable that there was a reduction of the peroxides by chemical or biological reducing agents from the wool and activated by conditions in the emulsion. Under the relatively anhydrous conditions on the fleece these agents were presumably inactive or their out-paced by aerial oxidation.

Unbleached lanolins produced from centrifugally-recovered wool fat have been found to have peroxide values between 1 and 12 depending on processing methods. A higher peroxide value of lanolin, however, is not indicative of autoxidation unless the peroxide value of the surface is significantly higher than that of the underlying bulk, since autoxidation of lanolin during storage affects only a thin surface layer.A high peroxide value for the whole of lanolin is a normal result of oxidative bleaching processes which are used because of the call for lanolin of the palest possible color. A peroxide value produced in this way is not accompanied by the large changes in acidity, unsaponifiables and cholesterol content which accompany a similar peroxide value resulting from gradual autoxidation. Odor improves rather than deteriorates during bleaching, confirming that the odor of highly autoxidized lanolin is not directly attributable to peroxides but to their breakdown products. Our results suggest that these develop no more rapidly in a bleached lanolin than in one of low original peroxide value.

That a high peroxide value in bleached lanolin is no detriment to its general application is made obvious by the preference which has always been shown for such lanolins by users. Only recently has an isolated disadvantage been reported, where batches of penicillin ointment prepared from lanolin of high peroxide value were found to have poor shelf life.

Thus, the recent tendency to regard lanolin as being autoxidized or rancid because of a high peroxide value is based upon an unsound comparison with other fats and oils. If the specification of a maximum limit for peroxide value should be contemplated, it should logically only be considered for special circumstances which arise such as that of penicillin ointment.

Pearl Essence

Pearl essence comes from the scales or bladders of certain fish which abound on the coasts of France, North Africa, Japan, England, etc. according to an extensive review by S. Sabetay and H. Hinsdiecker (*S.P.C.* 34: 57, 1961).

The preparation of pearl essence from bladders has been abandoned. Beside the fact that the quantities obtained were poor, the crystals of guanine were abnormally large, sometimes attaining a few millimeters.

Fifty kilograms of fish yield about 2 kilograms of scales. The latter contain generally from 0.2 to 0.6 per cent of guanine. This means that 4 to 8,000 kilograms of fish are needed to obtain one kilogram of guanine. As regards the herring, about 50,000 to 100,000 fish are reckoned per kg. guanine.

The pearl essence thus prepared is in general a suspension, more or less concentrated, of scales (guanine) in water, preserved by means of certain preservatives. It is then processed to form the various commercial products as, for instance, pearl essence in oil, pearl essence in collodion, aqueous pearl essence, etc. The pearl essence can be formed into a suspension in oils: mineral oil, castor oil. For higher concentrations, octyldodecanol is sometimes used.

The crystals of guanine carry along with them albuminoid impurities or other colloids, which accounts for the rapid deterioration of the product if it is not preserved carefully and efficiently.

Pearl essence is seldom marketed in the dry state. There are nevertheless found on the market more or less reliable products, said to be 100 per cent pure. In general, pearl essence is diluted in a suitable vehicle.

Bethe in 1895 showed that pearl essence consisted very largely of guanine, accompanied by traces of impurities.

Despite the efforts that have been made it has not so far been found possible to prepare synthetic guanine iridescent crystals, like those in fish scales.

The size of the crystals of pure guanine varies from 0.001 to 0.1 mm. The specific gravity is about 1.6. The crystals readily absorb impurities from their solution and hold them on the surface: traces of albumen, calcium, fats, etc.

It dissolves in alkalies with the formation of salts.

It is insoluble in water, alcohol, ether, etc., but is soluble in ammonia, especially in the hot state. It is also soluble in mineral acids.

Guanine decomposes at about 360° C., with partial sublimation.

The brilliance of natural crystallized guanine is explained by its flaky nature and its very high refractive index.

Pearl essence is analyzed mainly as regards its guanine content. The commercial grades generally contain 12, 18, 22, 38 and 50 per cent.

The analysis of pearl essence is also carried out from the points of view of whiteness, density of the crystals, brilliance, covering power. Quite often, the microscope is used for certain analyses. This examination takes into account the state of the crystals, their purity, foreign matter (rust, fragments, particles of albumen, etc.).

If well stabilized, pearl essence will keep quite well. The antiseptics employed are as a rule parahydroxybenzoates.

Apart from various uses in the pearl and button industries, for decorative designs, leather, etc., which domains are handled by specialists,

pearl essence has many uses in cosmetics; in particular for nail lacquer, always one of its main applications. Pearly lacquers, with or without the addition of pigment, are now being increasingly employed.

The percentage used depends on the degree of sheen which it is desired to obtain, and, of course, on the charges added. The more additives, the less apparent luster. The greatest drawback of the pearly nail lacquers is the deposit that forms; attempts have been made to remedy this by adding protective colloids or by covering the surface of pigments and pearl essence with special products. Nevertheless, the problem does not seem to be solved unless recourse is had to a mixture of pearl essences, certain qualities of which (the Japanese) are lighter but do not possess a perceptible luster.

Moreover, for nail lacquers, use is sometimes made of finer essences with small crystals, although less brilliant, owing to their slower sedimentation.

In lipsticks, very large additions of pearl essence have been advocated. Indeed, the more colored pigment and titanium oxide contained, the higher the percentage of pearl essence. To obtain visible apparent luster, a very high percentage of pearl essence must be added.

In eye shadow the problem is easier. When these pastes are free from coloring matter, a few per cent of pure guanine is then sufficient. When pigments and lacquers are added, the quantity of pearl essence must be much greater.

It has been found possible to color pearl luster bases (pearl essence) of the natural type and to obtain colored lustrous essences which may be used not only for face cosmetics but also for the hair.

The same considerations also apply to luster pencils for the eyelids, which are becoming more and more widely used. For some years, pearl essence has been added to the products applied to the edge of the lids and known as "eye liners."

Pearl essence is also added to foundation and other creams.

Owing to the difficulty of preparing a pearl essence that is free from solvents, it is very difficult to manufacture powders with a luster imparted by pearl essence. Nevertheless, pearl luster powders are available on the market whose lustre is furnished by other products.

In hair products and in particular in cold permanent waving, the addition of pearl essence in water is quite frequent. Extremely pleasing iridescent effects are obtained which enhance the commercial value of these products.

Pearl essence is not toxic, but a few sporadic cases of allergy are mentioned in literature.

In view of the limited possibility of producing pearl essence, attempts have been made for many years to make synthetic pigments possessing the same properties, especially as it has been found impossible to obtain iridescent synthetic guanine.

Certain bismuth compounds, in particular bismuth oxychloride, have also been advocated as substitutes for natural pearl essence. This type of substitute is found not only in products for the eyelids but also in certain lipsticks and certain varnishes. The mother-of-pearl effect is far less intense and pronounced than in the natural product. Bismuth oxychloride is said not to be very lightproof, as it has a tendency to blacken.

We must not forget aluminum and bronze powders, made iridescent and tinted by modern methods. With the aid of these products some equally interesting effects are obtained, although they cannot be compared from the points of view of luminosity and mother-of-pearl effect with true pearl essence and its substitutes. We would nevertheless draw special attention to the drawback of using aluminum bronze in pastes for the eyelids. Eyeshadow containing aluminum bronze turns green in the presence of lanolin, petroleum jelly, etc., after a few years, and in view of this we wonder whether such products, which contain copper, should be recommended for cosmetic use.

As regards both natural and synthetic pearl essence, it is not advisable to incorporate iridescent materials in pastes intended to be milled. Indeed, by crushing or pulverizing, natural and synthetic pearl essences lose part of their brilliance and become dull or greyish. Milling must, therefore, be carried out prior to incorporation, and such additives should not be added until the last moment. In this way the most satisfactory effects are undoubtedly obtained.

Hair Waving Patent

Brit. Pat 835,247. May 18, 1960. "Improvements to waving and unwaving hair." Soc. Monsavon L'Oreal, Paris. Relates to a paste for preparing an aqueous solution for changing the configuration of hair. It is known that the configuration of hair may be changed, in the cold or with heating, by splitting the cystine linkages in the keratin structure and by reconstituting these linkages with the aid of an oxidizing agent, or more slowly with the aid of the oxygen of the air. It is now suggested to use nascent hydrogen for the reduction of cystine linkages. For this purpose a hydrogen-generating product must be used, of which the rate of decomposition can be kept under control, and the residual products of which do not damage the hair and can be readily washed out. It has been discovered that solutions of alkaline borohydrides are very useful for this purpose and have great advantages. Such a paste for softening the keratin in hair comprises a dispersion of a water-soluble, alkaline borohydride in a water-soluble, easily fusible synthetic wax carrier and a buffering agent.

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Now offered in commercial quantities, Arabasan is a spray-dried, snow white powder gum arabic that is virtually colorless in solution. It is almost completely free from sediment and impurities common to even the best grades of gum arabic in use today. No further refining is required, in most instances.

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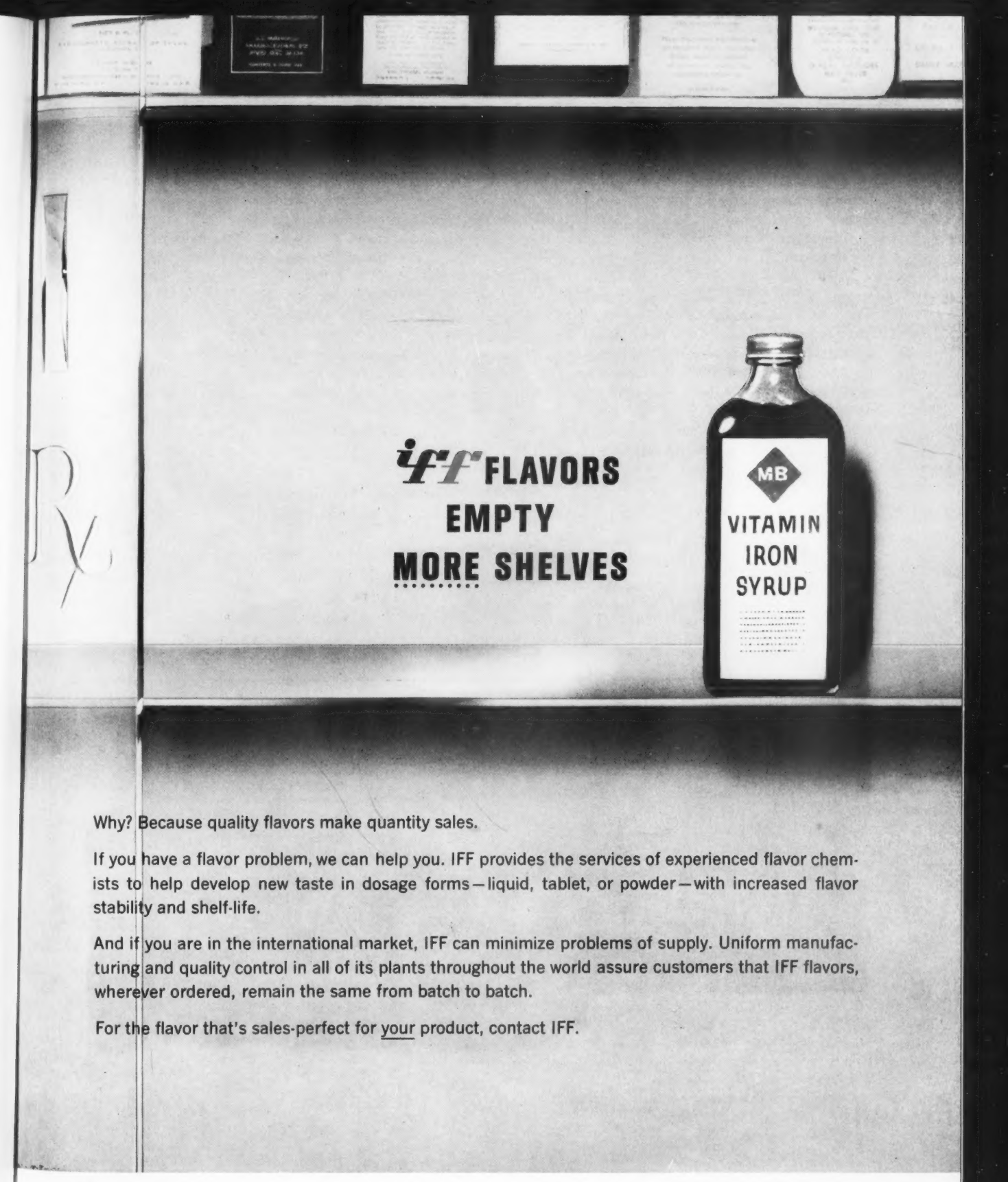

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MARKET REVIEW . . .

Sandalwood Oil

Sandalwood oil, one of the oldest commodities of commerce, has for some years been gradually losing its importance in medicine. A resurgent interest in this ancient product, however, is reflected in its present appeal.

Sandalwood oil is again one of the outstanding strong points in the domestic essential oil market. The prevailing price here of $21.00 per pound is approximately double what it was about 18 months ago, and the market is currently very firm at this level. Importers say that cables for January-February shipment are deferred to March-April, and are accepted here on this basis.

Several factors are reportedly responsible for the oil's current position. First of all, the price of sandalwood in Mysore has been advanced about $200.00 per ton which, on the basis of a 5 per cent yield of oil, would alone account for an increase in production cost of about $1.00 per pound.

Another important factor is the increase in demand for this oil during the past year or two, not only from the United States, but especially from European countries. It is well-known that many European countries are currently enjoying a great upsurge in prosperity, with a consequent increase in money available for such items as perfume.

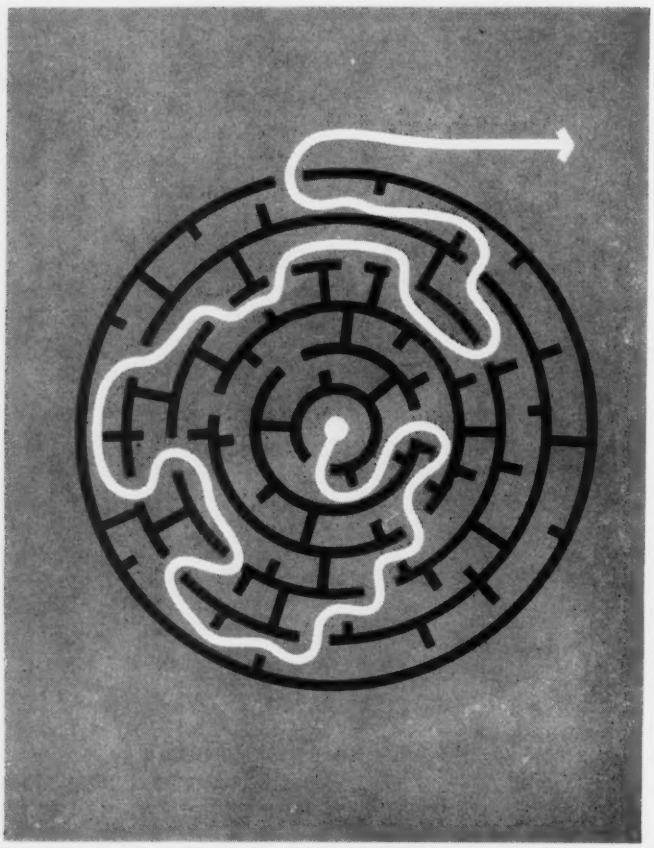
There are also indications that the Government of Mysore is endeavoring to conserve sandalwood groves. In recent years a form of blight known as "spike" has been doing some damage among the groves in both Mysore and the surrounding districts. This may have some effect on the position taken by the government as the primary supplier. Since it takes from 18 to 25 years for a sandalwood tree to reach maturity, at which time it is felled for production of oil, it is quite understandable that precautionary measures must be taken.

There is no absolute substitute for sandalwood oil, owing to its marked fixative properties, although there are products now available, not for use as replacement material, but rather as extenders for such products as medicine, perfumery, and soap compounds.

Agar Strong in Botanical Market

Dealers in the spot market advanced agar-agar 25 cents a pound and now quote $3.00 to $3.10. This substantial change followed reports that the new crop, which should be arriving here in a few months, is shorter than anticipated.

At no time during the past year have supplies been sufficiently large, or demand sufficiently weak, to lower prices to the more normal $2.00 a pound level.



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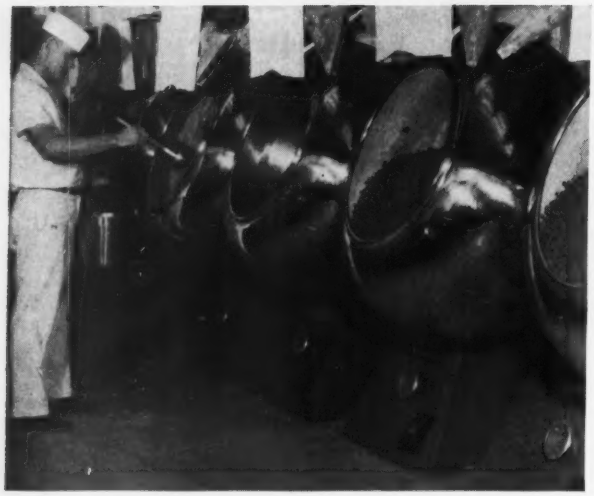

Variable speed drive on the 24 new Stokes Model 100-VS Multi-Purpose Coating Stands, recently installed at Rexall's St. Louis plant, gives the production flexibility needed for the company's varied line of products. With speed options ranging from 15 to 30 rpm, company personnel are able to select the best speed for each coating requirement.

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(*Continued from page 352*)

come a national resource of great meaning for all who deal with cosmetics, drugs, and hazardous substances. Through reporting of incidents of untoward skin responses to applied substances, a major activity can be developed for the health protection of all persons.

The Food and Drug Administration, through its specialized staff, maintains vigilant surveillance over the nation's supply of foods, drugs, devices, cosmetics, caustics, corrosives and other hazardous substances to assure the protection afforded through the several statutes it administers. Only with the public-spirited cooperation of physicians, other professional workers, and the industries concerned, can the public health be fully protected. This Agency strives to merit the confidence and cooperation of the cosmetic industry and also of the members of the health professions in protecting the health and welfare with respect to cosmetics.

BIOLOGICAL RESEARCH AND COSMETICS

(*Continued from page 313*)

istry, on the other hand, with all of its faults and lack of refinements, is useful in demonstrating where a certain chemical substance is located; it may be found in the epidermis, the sebaceous glands, the sweat glands, or in hair follicles, active or quiescent.

Let me elucidate this point: We have known for some time that skin contains a peptidase, but it has been assumed that the source of this enzyme is the pool of lymphocytes in the dermis (Fruton[3]). We now know that the secretory segment of eccrine sweat glands and the dermal papilla of hair follicles are abundantly rich in leucine aminopeptidase. Many other such examples can be given. We have found that amylophosphorylase and glycogen are precisely concentrated in eccrine sweat glands. Perhaps, who knows, a judicious local interference with phosphorylation and glycolysis could interfere with the proper functioning of these glands, and thus one might achieve local anhydrosis, so popular nowadays. The list of the histochemically demonstrable enzymes grows daily, and the chemist cannot afford to ignore it and must eventually make good use of it.

A few years ago, Fell and Mellanby[4] and then Weiss and James[5] demonstrated that embryonic cutaneous tissues treated *in vitro* with vitamin A undergo mucoid metaplasia rather than a keratinous transformation. Bern and his colleagues[6] have also demonstrated a mucoid metaplasia in the vaginal epithelium of the rat after the use of large amounts of vitamin A. These are the only bits of "evidence" that vitamin A has antikeratinogenic properties. In spite of this shaky premise, both pharmaceutical and cosmetic agencies have been incorporating it in various ointments. In adult rats, mice, and guinea pigs,

we have not been able to inhibit keratinization, even when very large amounts of vitamin A are used. Furthermore, our experience with vitamin A, including studies of labeled substances, is that it does not go through the intact human skin, although it does penetrate the skin of rodents. Similarly, in spite of the wide topical use of pantothenic acid, we are convinced that it does not easily penetrate the intact skin.

There is a wanton topical use of androgenic and estrogenic hormones. In most cases, the use of sex hormones is either a deliberate attempt to hoodwink the user or a misinterpretation of the known effects of these agents on the skin appendages. We know that androgenic substances enhance the growth and differentiation of sebaceous glands and that estrogenic hormones tend to suppress them. We know also that, at least in the skin of rodents, both of these hormones increase the rate of mitotic activity in the cells of the epidermis. Is this enough knowledge to warrant using these substances on senile skin? What do we know about the ultimate effect of prolonged usage? These are serious considerations that have been ignored by both the pharmaceutical and the cosmetic manufacturer.

On the flimsy assumption that sunlight is good for the skin, an assumption that is rapidly losing ground, the cosmetic industry is developing substances that, by filtering out ultraviolet light, allow one to bake in the sun and not burn. Substances have also been developed that give one a sun-baked look, whether or not he has been out of doors. These are good things, since actinic rays are probably among the most devastating known agents to the skin. Reflect that the most pronounced senile changes take place in the exposed areas of the body. The high incidence of cancer in the skin exposed to the sun's rays cannot be dismissed lightly.

An important contribution of the biologist to our total understanding of skin is in the field of comparative anatomy and physiology. Few realize that the skin of man is enormously different from that of other mammals. We are searching for differences and similarities, with the intent that eventually these will be annotated with such care that it will be possible to perform experiments on the skin of specific animals and have the results be meaningful in relation to the skin of man. There are other examples of contribution by the biologist to the development of cosmetic industries, but let us let these suffice.

As our lives become more complicated and new artifices are compounded to put on our skins, the cosmetic industry is going to play an increasingly important role. If the industry is going to be beneficial to society as well as to itself, it must depend more and more upon the judgment of the biologist and the physician. These will point out the problems and counsel as to what can and cannot be done. Re-

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joice in the meantime, in the thought that skin is a very hardy organ and will resist many abuses, often even severe ones.

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RADIOISOTOPES

(*Continued from page 316*)

host of problems involving the identification and measurement of minute amounts of residues and metabolites. Such problems are common to the food, pharmaceutical, cosmetic, and packaging industries. The use of tracer techniques in these studies is not only advantageous, but scientifically necessary in the measurement of sub part-per-million levels of organic materials in biological media. In any study of a biologically active substance, one wishes to know the metabolic products of the material in the animal body. A study of this nature may provide valuable information regarding the mechanism of action of the substance, and may define the role of the metabolites in any toxic effects noted. By labeling specific atoms or functional groups in the compound with a radioelement, one may readily determine their metabolic fate. To determine if a specific group in an organic compound is completely oxidized *in vivo* to carbon dioxide, the compound is labeled with radiocarbon (C^{14}) and administered to the subject. The expired air is then collected and analyzed for its $C^{14}O_2$ content. A quantitative determination of the C^{14} excreted is a sensitive indicator of the route of metabolism of the compound. The application of the tracer technique in studies of this nature is shown in Figure 2.

In skin penetration studies, it appears that the autoradiographic technique would be of particular value. In this procedure the radioactivity-labeled material of interest is applied to the skin in its normal mode of use. Skin sections are then taken and mounted. The section containing the radioactive compound is next coated with photographic emulsion, exposed, and processed. Since ionizing radiation has the ability to activate the photographic emulsion, areas of film darkening correspond precisely to areas of localization of the labeled compound in the sublayers of the skin. Figure 3 depicts application of autoradiography in a study of the penetration of iodide ion into frog skin. In this case I^{131} was the radioelement used.

(*Continued on page 382*)

Skin Research

Acne Vulgaris Pathology

The purpose of an exhibit by J. S. Strauss and A. M. Kligman (*Arch. Dermatol.* 82: 779, 1960) is to display the pathologic events in acne vulgaris. Because it attacks the face, histopathologic study heretofore has been limited.

The lesions of acne occur in special follicles, the sebaceous follicles, which are found in great abundance on the cheek and forehead. These follicles also occur on the chin, in the beard, and to a less extent, on the back and chest. They are characterized by (1) widely dilated follicular canals filled with keratin, lipids, and organisms; (2) massive multilobular sebaceous acini lying deep in the dermis; (3) small inconspicuous vellus hairs which cannot keep the follicle cleared out.

Two types of comedones develop in sebaceous follicles: 1. The clinical "blackhead" is an open comedo composed of an epithelium-lined sac filled with horney lamellated material. The mouth is widely dilated; the contents can escape to the surface, and it rarely becomes inflammatory. 2. In contrast, those lesions clinically classified as "whiteheads" are closed comedones and have only a microscopic opening which keeps the contents from escaping. The explosion of this time bomb sets off the inflammatory process.

The rupture of the walls of closed comedomes leads to the liberation of lipoids and horny material into the surrounding dermis, exciting a foreign-body reaction. These deep inflammatory lesions are often infected with Corynebacterium (Propionibacterium) acnes, an acid-producing organism.

While the deep lesions occur as a result of rupture of closed comedones, the more superficial pustules are of several origins. Most of them occur in sebaceous follicles without comedones and start as small follicular breaks through which sebum escapes with resulting inflammation. These small breaks are undoubtedly occurring constantly. Pustules also originate from the rupture of closed comedones or there may be a true bacterial impetigo of the follicle.

During repair, two basic processes take place. Healing by fibrosis may lead to hypertrophic scarring or, more commonly, atrophic pits. In addition, the epidermis from the remaining follicular walls constantly sends out sheaths of epithelium, which tend to escapsulate any inflammatory mass. Often this encapsulation is complete.

There are three major factors in inflammation:

1. The injection of sebum causes severe inflammation. The major inflammatory agent in sebum appears to be the short-chain fatty acids which, when injected alone, produce severe damage. The inflammatory inciting power of sebum is greatly reduced when its fatty acids are removed.

2. The injection of keratin incites inflammation which is predominantly of the foreign body type with many giant cells.

3. Corynebacterium acnes injected into keratinous cysts results in their rupture with massive inflammation.

Properties of Hair

A lecture on the chemistry of hair was given by Professor C. S. Whewell, of Leeds University at the December meeting of the British Society of Cosmetic Chemists.

The lecturer commented that much of the experimental work which he described was done on wool. The general principles were applicable to both wool and hair but quantitative aspects were specific to each fiber. The lecturer continued with an account of some general aspects of hair chemistry. He summarized the structure of human hair, which is composed of cuticle, cortex and, sometimes, medulla. These cortical cells may be divided into fibrils and micro-fibrils. In wool there are two types of cell, ortho-cortex and para-cortex. In crimped fiber the ortho-cortex is on the outside and the para-cortex on the inside of the crimp. The ortho-cortex is the more reactive. The crystalline/amorphous ratio in hair was 20/80. Much more is known about the crystalline portion.

Hair is a fairly complicated structure but much of the complexity can be disregarded. Many fibers are pigmented but the distribution of the pigment is not always uniform. The distribution of cells producing pigment is asymmetrical even in the follicle. The presence of pigment affects the physical properties of the fibres. This is probably due to cross linkages. Pigment granules from the hair can be isolated by boiling the hair with phenol and thio-glycolic acid. The elastic characteristics of pigmented and unpigmented hair have been studied. The standard taken was the work required to stretch hair by 30 per cent of its initial length. For black hair this was 1.49 units and white 1.34. This difference is statistically significant; black hair is therefore stronger than white. Black fibers can be bleached by the use of hydrogen peroxide and an iron catalyst, but the process was difficult to control. Pigmented hair absorbs more iron than unpigmented. Less degradation of hair occurs if the hair is thoroughly washed between the iron treatment and the bleaching. There is always a danger of degradation following extended bleaching. Incorporation of formaldehyde in the iron treatment is useful.

The lecturer then turned to the relation between the reactivity of wool and its ability to take a permanent set. It is important to recognize the different meanings attached to the words "permanent set" but in all cases bond fission and bond building between long chains was essential. If hair is stretched 40 per cent, boiled in water for the necessary time, slacked off and boiled in water, if any set has been produced the final length is greater than originally.

If the set is plotted against setting time the curve shows an initial period of super contraction prior to setting. It was suggested that the first stage is due to bond breaking while the second stage of setting arises from bond rebuilding and stabilizing.

The lecturer concluded with an account of the effect of chemical treatments on setting, e.g., oxidizing agents. Recently tetra bis (hydroxy methyl) phosphonium chloride and thio urea dioxide had been shown to be effective setting agents no doubt because of their reducing properties. Supercontraction was being studied. Considerable interest was being shown in the absorption of cuprammonium hydroxide on hair. Hair treated in this way gave no X-ray photograph, which suggested a change in structure of the hair.

Percutaneous Absorption of Nicotinic Acid Derivatives

R. B. Stoughton, W. E. Clendenning, and D. Kruse (*J. Invest. Dermatol.* 35: 337, 1960) utilized a biologic reaction, vasodilation, to measure penetration through the epidermis of nicotinic acid and seven closely related derivatives—nicotinic acid hydrochloride, methyl nicotinate, ethyl nicotinate, butyl nicotinate, hexyl nicotinate, octyl nicotinate, tetrahydrofurfuryl nicotinate. Intradermal injections of these compounds in various dilutions, with five subjects, showed that they were all of about equal potency in causing an erythemal response as compared with injection of saline. They produced this response at concentrations of 10^{-9}, but not at 10^{-10}. The compounds, dissolved in 95 per cent alcohol, were then dropped on the skin surface (forarm and back) in various concentrations to determine the minimum concentration that would cause reddening. These concentrations were nicotinic acid 1:150; nicotinic acid hydrochloride 1:150; methyl nicotinate 1:20,000; ethyl nicotinate 1:18,000; butyl nicotinate 1:2,700; hexyl nicotinate 1:4,000; octyl nicotinate 1:300; tetrahydrofurfuryl nicotinate 1:4,300. Since the compounds are all of equivalent activity when injected, the authors postulate that differences in topical activity are related to percutaneous absorption and devise a penetration index. This index is obtained by dividing the end-point dilution of the nicotinate by the end-point dilution of nicotinic acid and the index values, in the same order as above, are 1, 1, 133, 120, 18, 27, 2, 29. The partition coefficients of these compounds between water and ether, as well as absolute solubilities in water and in ether, were measured and found to be related to the penetration index.

Topical Griseofulvin

Local application of griseofulvin as a carbowax ointment is as potent as oral administration of the preparation in reducing the intensity and shortening the duration of experimental trichophytosis in guinea pigs, according to J. R. Frey and H. Geleick (*Dermatologica* 121: 265, 1961).

After local application of griseofulvin the infection foci or sites of inoculation become more rapidly fungus-free than after oral administration.

After local application of griseofulvin the intrapilary fungus forms are influenced to the same extent as after oral administration, which proves that when applied locally griseofulvin also penetrates into the hair.

In view of the good results of local treatment in guinea pigs and the limited action of oral griseofulvin therapy in certain dermatomycoses, clinical trial or griseofulvin in a suitable base and perhaps combined with oral administration would seem advisable.

Fungicide Compounds

The polymethylene-bis-4-aminoquinaldinium salts (B.A.Q.D.) have been reported by Babbs, Collier, Austin, Potter and Taylor to have potent antibacterial activity, of this series the decamethylene member, dequalinium, has been found to be highly effective as a topical antibacterial agent.

In this present work by W. A. Cox and P. F. D'Arcy (*J. Pharm. Pharmacol.* 13: 34, 1961) dequalinium and some other members of this series have been examined for their activity against two yeasts, *Pityrosporum ovale* and *Candida albicans*.

A homologous series of polymethylene-bis-4-aminoquinaldinium salts has been shown to possess marked fungistatic activity against the potential pathogens. The peak of antifungal activity against. *C. albicans* occurs at a chain length $(CH_2)_{12}$, whilst against *P. ovale* the most active member of the series has a chain length $(CH_2)_6$. The decamethylene member (dequalinium), shows a potent and rapid fungicidal activity against both yeasts; quantitative data, from experiments involving short periods of drug-yeast contact, indicates that this activity of dequalinium is a function of the concentration of the quaternary compound and of the time of exposure.

New Topical Chemotherapeutic

In vitro experience has shown that the substance PP_1 and other derivatives of urea have bacteriostatic and antimycotic properties. Active concentrations correspond approximately to those of the classical medicaments, but their wide antimycotic spectrum is different, according to A. Nauer (*Dermatologica*, 121: 285, 1961). It may be that these antimycotics of wide spectrum will not only be of importance in medicine, but they could also be used against molds and for the protection of wood against micro-organism attack, especially in the tropics. The favorable clinical effect of PP_1 powder in dermatoses due to yeasts makes it seem likely that this substance could be used in high concentrations. As it is a white substance easily applied and which has no adverse secondary effects at high concentrations, the required postulates for the use of a new medicament are met.

The compound PP_1 is a polymethylene urea compound of unknown molecular weight; other compounds tested and found to be effective include symmetrical dihydroxymethylenethiourea; symmetrical dihydroxymethyleneurea; and hydroxymethylene-methyl-thiourea. These were tested against *Trichophyton gypseum granulosum, Epidermophyton interdigitale, Aspergillus niger*, and *Candida albicans*. PP_1 was active in one per cent concentration against the first two molds, but inactive against the others. The other urea derivatives were effective against all four micro-organisms. Only the PP_1 compound, as a 10 per cent dusting powder, was checked clinically, and was found to be useful against a large number of dermatoses. It caused no sensitizations.

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(Continued from page 376)

Product Evaluation. By virtue of the fact that radioisotopes can "see" through products and are able to trace products or the active ingredients within, they have proved useful in determining if specifications set upon various materials and processes are being met. Isotopes as tracers are useful in evaluating the completeness of mixing of many blended products such as animal feeds, cement, and liquid mixtures. Also in the product evaluation field, tracers find application in studying the wear properties of such products as floor waxes, asphalt tiles, and metal parts. In such procedures, measurement of radioactivity remaining in the test object or that transferred to some other material during frictional wear is evaluated. In the detergent and cosmetic industries, studies of the adsorption and removal of soils and other debris from clothing and skin have been carried out using isotopes as tracers.

Similar techniques have been applied with success to product and process evaluation problems in the cosmetic and pharmaceutical fields. Examples of such uses are listed below.

1. Studies of ingredient migration through and out of various matrices. Applied to studies of ointment and cream bases.[8, 9]

2. Evaluation of astringent preparations for their ability to effect ion transfer through membranes.[10]

3. Studies of ingredient release from emulsions. Rating of emulsifiers by release-measurement procedures.

4. Studies of emulsion stability by following the rate of creaming and cracking by tracer procedures.

These examples serve to illustrate the type of problem in the cosmetic formulation field which has been approached by tracer techniques. Undoubtedly many other product evaluation studies might well be carried out with significant advantage by radioisotope procedures. As an example, the use of the radioelements as analytical tools would surely find application in a wide range of cosmetic research problems. A full discussion of all facets of radioisotope uses that could apply in the cosmetic field is beyond the scope of this paper. For a more complete survey of such applications and techniques, the reader is referred to a recent report by Christian and Bousquet.[11]

Isotope Applications to Cosmetic Manufacturing and Packaging

It has been mentioned previously that nuclear technology has been successfully applied to industrial process control situations. In most instances, the principle utilized is that of radioisotope gaging, that is, the parameter of interest is reflected by a change in signal strength when the product under examination is interposed between a radioactive source-detector combination.

Examples of production and packaging operations

(Continued on page 384)

TRADE LITERATURE

Aersosol Packaging. Sprayon Products, Inc., 2075 East 65th St., Cleveland 3, Ohio—12-pg. brochure describes evaluation of new products for aerosol use, various filling processes, and a new sprayer.

Chemical Resistant Floors. Ralph V. Rulon, Inc., 3900 N. Second St., Philadelphia 40, Pa.—8-pg. illus. catalog (Bulletin #604) describes thirty Rulon corrosion resistant materials and their applications.

Corrosion-Resistant Equipment. Lee Metal Products Company, Inc., Philipsburg, Pa.—four 1-pg. bulletins describe corrosion-resistant equipment for chemical, food, cosmetic, and pharmaceutical processing. Specifications and detailed information are included on coil and no-coil tanks, pulp tanks and cooking coils, horizontal and vertical storage tanks, and custom designed vessels.

Centrifugal Pumps. Goulds Pumps, Inc., 219 Black Brook Road, Seneca Falls, N. Y.—15-pg. bulletin gives complete specifications, interchangeability chart, performance curves, and dimensions, for the new sizes of model 3405 line of single-stage, double suction centrifugal pumps. The 34 sizes now available provide capacities from 100 to 6400 gpm with heads up to 525 ft.

Atomizing Nozzles. Schutte and Koerting Company, Dept. JA-31, Cornwells Heights, Bucks County, Pa.—1-pg. bulletin 6A describes application, characteristics, construction, and operation of hollow-cone and solid-cone atomizing nozzles and gives capacity curves, specifications, and prices.

Laboratory Furniture. Scientific Apparatus Makers Association, Laboratory Equipment Section, 20 No. Wacker Drive, Chicago 6, Ill.—chart form of the results of a laboratory furniture market research study.

Perfumes. Florasynth Laboratories, Inc., 900 Van Nest Avenue, New York 62, N. Y.—19-pg. perfume catalog lists flowerols, perfume specialties, aerosol bouquets, and cover-odors with current prices.

Straightline Vacuum Filler. U. S. Bottlers Machinery Co., (see above)—8-pg. illus. bulletin describes one-man operated vacuum filler, Model B-49.

Glassed-metal Pipe. Pfaudler Division, Pfaudler Permutit Inc., Rochester 3, N. Y.—16-pg. bulletin describes glassed-metal pipe, valves, and fittings and includes cut-away drawings, specifications, and dimensions.

Caustic Soda. Technical Lit. Dept., U. S. Industrial Chemical Co., 99 Park Ave., New York 16, N. Y.—40-pg. booklet gives complete chemical and physical properties on caustic soda, with graphs and tables.

Gas Chromatograph. Technical Information Dept., Beckman Scientific and Process Instruments Div., Fullerton, Calif.—14-pg. illus. bulletin 787 describes the new GC-2A gas chromatograph.

Filling Machines. Arthur Colton Company, 3400 East Lafayette, Detroit 7, Michigan—8-pg. illus. brochure (AC-60 Revised) describes complete line of filling machines for all types of liquids, creams, pastes, paints, chemicals, and food products and includes a data table.

Acetal Resins. E. I. du Pont de Nemours & Company, Inc., Wilmington 98, Delaware (Poly-chemicals Department)—23-pg. product booklet describes some of the commercial applications of Delrin acetal resins.

Vinyl Coating. Union Carbide Plastics Company, 270 Park Avenue, New York 17, N. Y.—34-pg. illus. booklet on vinyl solution coating formulation techniques. Includes general properties and use, formulations and preparation of clear, pigmented coatings, application methods, and tables listing pigments and dyes.

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(*Continued from page 382*)

that are well suited to the employment of nuclear gages and controls are the following:

1. Package fill monitoring and control,
2. Measurement and control of material thickness,
3. Measurement and control of material moisture content,
4. Flow rate control in closed systems, and
5. Measurement and control of material density.

There are many industrial processes in which isotope technology finds application. The above examples were chosen because they reflect procedures that conceivably could find employment in the cosmetic industry. FIGURE 4 shows the equipment used and calibration curve obtained in making moisture measurements by the nuclear method. The probe unit of this device contains a source of neutrons. As the neutrons pass into the material of interest, they are slowed down and scattered by any water present. The number of neutrons backscattered into the sensing element within the probe is a direct function of the water content of the bulk material. The obvious advantage of this procedure is that it represents an *in situ* method of measurement, readily adaptable to production-line use.

FIGURE 5 depicts the application of an isotope gage to the automatic in-process control of extraction and separation processes, and lists the advantages of such a technique.

The application of radioisotope techniques to package monitoring is illustrated in FIGURE 6. Here the isotope principle utilized is that a substantial difference in signal size is observed if an empty or underfilled container passes through the gage. The system may readily be automated to remove sub-standard packages from the line and in general to function as a production analyzer.

FIGURE 7 shows another situation wherein container fill monitoring and control may be simplified and automated through use of a nuclear gage. The particular advantage in this type of operation is that it is routinely applicable to opaque or translucent containers where visual inspection is of little value. Further, many situations are met in which product weight is substantially less than container weight. In these cases, spot-weighing checks of the finished package can be misleading as to actual container fill.

Summary

Radioisotope techniques are presently making a substantial contribution to research and technology in United States industry. Research applications of the radioelements as tracer substances have made possible significant savings in the research time of technical personnel. Furthermore, a substantial number of investigational areas have developed through isotope use, which could not have been explored with conventional techniques. Nuclear technology has also

(*Continued on page 388*)

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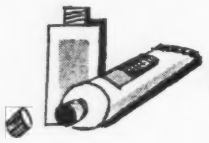

Advancing Therapy

New Energizer and Hypotensive

Previous studies have suggested that effective inhibition of monoamine oxidase (MAO) by various drugs in human hypertensives results in an orthostatic decrease in blood pressure. Agents of this type include iproniazid (Marsilid), trans-DL-2-phenylcyclopropylamine (SKF-385, Parnate), β-phenylisopropylhydrazine (JB-516, Catron), phenylzine (Nardil), nialamide (Niamid), DL - serine - N^2 - isopropylhydrazide (RO-4-1038) (4), and isocarboxazid (Marplan) (5). However, any final conclusion concerning a relationship between enzyme inhibition and blood pressure lowering has been tempered by the fact that, with the exception of SKF-385, all of these agents are hydrazine derivatives. Also, either because of low potency or occurrence of prohibitive toxicity, none have become valuable therapeutic agents in hypertension.

Thus, the discovery of the potent, non-hydrazine, MAO inhibitor, N-benzyl - N - methyl - 2 - propynyl - amine•HCl (MO-911), by Taylor *et al.* was of special interest. This report by D. Horowitz and A. Sjoerdsma (*Proc. Soc. Exptl. Biol. Med.* 106: 118, 1961) presents initial results of administering this compound to human subjects

Much attention is now being given to therapeutic use of guanethidine (Ismelin) and bretylium tosylate (Darenthin), agents which produce orthostatic hypotension *via* sympathetic blockade in absence of parasympathetic blockade. Preliminary findings suggest that MO-911 compares favorably with these drugs and may also have desirable psychic properties. The drug is sufficiently potent to be used alone, although adjuvant agents could reasonably be expected to reduce dose requirements and might improve the responsiveness of some patients. The slow onset and long duration of its action are ideally suited to management of the ambulatory hypertensive. For initiation of treatment daily doses of 100 to 125 mg given under close observation are recommended. When the desired blood pressure effect has been established, the dose can be reduced to maintenance levels which will probably range from 37.5 to 75 mg/day. Alternatively one might begin treatment at 37.5 mg/day and increase the daily dose 12.5 mg every 2 weeks until optimal effect is obtained.

The effectiveness of MO-911 as an antihypertensive agent is considered established. From data in laboratory animals, it would appear to have a more favorable therapeutic index than has been available heretofore with MAO inhibitors. However, the question of chronic toxicity, particularly hepatic and neurologic reactions as encountered in some patients receiving hydrazine-containing inhibitors, can be resolved only by further clinical trial.

Colds and Antibiotics

Ritchie (158a and b) has suggested that small doses of antibiotics taken at the beginning of the common cold can prevent a secondary bacterial invasion and therefore shorten the duration of symptoms. The present trial by C. B. McKerrow et al (*The Lancet* 1961, I, 185) was designed (a) to test whether these measures could prevent exacerbations of bronchitis in subjects with pneumoconiosis, and (b) to confirm and extend Ritchie's findings in normal subjects.

Two groups of subjects were studied: 138 ex-miners with pneumoconiosis and some degree of bronchitis, and 55 normal adults of both sexes.

Either dummy lozenges or ones containing 15 mg. of tetracycline, oxytetracycline, or chlortetracycline (depending on the sensitivity of the salivary organisms) were given at the earliest symptoms of a cold, the allocation to active or dummy lozenges being at random. The dose was 3 lozenges daily for three days.

The proportion of all first colds cured in three days on active lozenges in the bronchitic subjects and in the normals was similar; the two groups on dummy lozenges also behaved similarly. In the groups combined, about 23 per cent of colds were cured in three days on dummy lozenges and this was significantly increased to 50 per cent in those taking active lozenges, thus confirming Ritchie's hypothesis.

There was no evidence that the antibiotics speeded the cure of colds starting in the chest. There was no appreciable reduction in the number of spells of absence due to illness among those ex-miners taking the active lozenges, but this may be because only one severe exacerbation of bronchitis followed a head cold.

After the trial, more subjects had resistant salivary organisms: but they were found about equally in those taking active and dummy lozenges, and their significance is uncertain.

The weight of evidence now strongly supports the idea that recovery from the common cold can be speeded by treatment with antibiotics. The most suitable antibiotic and the optimal dosage have not yet been determined.

Lucanthone Resinates

Lucanthone hydrochloride ('Miracil D') was introduced for oral treatment of schistosomiasis. It is 1-β-diethylaminoethylamino - 4 - methylthioxanthone hydrochloride. It has been successfully used for twelve years, in which its main drawback has always been the severity of gastrointestinal side-effects. There have been several attempts to present lucanthone in a less irritant form, but the hydrochloride remains in general use.

The description by Abrahams and Linnell of oral depot therapy with drug resinates suggested to A. Davis (*The Lancet* 1961, I, 20) that lucanthone resinates might produce adequate blood-levels without the unpleasant side-effects associated with the hydrochloride. The lucanthone was combined with 'Zeocarb 225 H' resin of 1 per cent and 8 per cent cross-linkage. The plasma levels after single doses equivalent to 1 g. of lucanthone base were estimated by an acetone-ether extraction method in baboons and in man. Satisfactory blood-levels were obtained with

the 1 per cent cross-linkage compound but not with the 8 per cent compound, and side-effects were minimal.

When the same resinates were given, in doses of 1 g. lucanthone equivalent twice daily for three days, to patients in East Africa, the 1 per cent cross-linkage resinate maintained a curative blood-level of over 0.5 mg. per 100 ml. but the 8 per cent resinate did not. Cures were obtained with the 1 per cent resinate, and side-effects were not troublesome.

Two compounds were used—a 1 per cent cross-linkage resin containing 36.4 per cent lucanthone, and a 2 per cent cross-linkage resin containing 41.3 per cent lucanthone.

Results suggest that one course of treatment with the 2 per cent resinate may prove acceptable and effective for most hematobium infections and that two courses may be needed for mansoni infections.

The resinate greatly reduced the frequency of side-effects; but the reduction in their severity, was equally satisfactory. In fact, three of the patients recorded as having symptoms complained only of slight nausea and epigastric discomfort lasting a few hours, and they could almost have been placed in the "no-side-effects" group.

Treating Anemia

Previous clinical studies in which the authors used a vitamin-B_{12}-peptide complex derived from *Streptomyces griseus* (H.P.P./1) have been extended by F. S. Mooney and J. G. Heathcote (*Brit. Med. J.* 1961, I, 232) to include cases treated with batches of a vitamin-B_{12}-peptide derived from fermentations of a species of *Propionibacterium.*

Ten patients receiving H.P.P./1 have now been maintained for an average period of 1,026 days on an average daily dose equivalent to 8.6 μg. of vitamin B_{12}.

Eleven patients receiving the propionibacterium peptide complex have been maintained for an average period of 849 days on an average daily dose equivalent to 19.7 μg. of vitamin B_{12}.

The superiority of the propionibacterium complex over crystalline vitamin B_{12} in the oral treatment of pernicious anemia has been demonstrated in a controlled experiment, and daily doses of 300 μg. of vitamin B_{12} equivalent have given a maximum response in two other patients.

No refractoriness or neurological complications have developed and all patients remain in complete clinical remission.

Comparing Diuretics

The hypotensive effects of chlorothiazide, hydrochlorothiazide and placebo were assayed in ambulatory patients with mild to moderately severe hypertension with the use of rigid principles of statistical design by S. E. Rosenbloom et al (*N. E. J. Med.* 264: 164, 1961).

Chlorothiazide and hydrochlorothiazide at one-tenth the dose each produced a moderate lowering of systolic and diastolic blood pressures as compared with a placebo, but no statistically significant differences were noted between these two agents in hypotensive effects, ease of administration or production of side effects.

The study demonstrated that with a double-blind design combined with proper random sampling a valid drug assay can be performed on a relatively small number of hypertensive subjects.

In patients with cirrhosis and fluid retention hydrochlorothiazide was compared with hydroflumethiazide by S. G. Edelstein et al (*N. E. J. Med.* 264: 207, 1961) to determine whether the substitution of a trifluormethyl group for the chlorine atom alters the potency of the patent compound as a natriuretic or kaluretic agent.

A double-blind, crossover design was found to be useful in comparing two diuretic agents in a small number of patients.

A diminishing response to both diuretic agents was observed as the sequence progressed.

There was no clinically important difference between the two diuretic agents in either natriuretic or kaluretic potency.

Progesterone Activity

The 16α, 17α acetophenone (P-DHP) and acetone (A-DHP) derivatives of 16α, 17α-dihydroxyprogesterone (DHP) and their 6α-methyl, 6β-methyl, 6α-fluoro and 6β-fluoro analogues were assayed by L. J. Lerner, D. M. Brennan, and A. Borman (*Proc. Soc. Exptl. Biol. Med.* 106: 231, 1961) for parenteral and oral progestational activity. P-DHP and A-DHP are equal in parenteral activity, each being about twice as potent as progesterone. P-DHP is strongly active orally, being 1 to 2 times as active as norethisterone, whereas A-DHP was only weak oral activity. Parenteral activity of P-DHP or A-DHP was not altered by 6-methylation. Oral activity of 6β-methyl-P-DHP was similar to P-DHP but both 6α and 6β-methyl-A-DHP were more potent orally than A-DHP. 6α fluorination had little or no enhancing effect on either parent compound when parenterally administered but did reduce oral potency. 6β fluorination made both parent steroids inactive by either route of administration. P-DHP and A-DHP have longer duration of activity than progesterone, moderate progestational effects still being present 25 days and 20 days, respectively, following a single 10 mg intramuscular injection. P-DHP is devoid of inherent androgenic, antiandrogenic, estrogenic, anti-DCA or corticoid activities.

Cellulase Enzyme

Miles Chemical Company, Elkhart, Ind., has developed a new cellulase enzyme—Takamine Cellulase 4000—which possesses excellent stability and activity under a wide range of conditions. It hydrolyzes and thus depolymerizes cellulosic materials.

It is commercially available with standardized 4000 cellulase units per gram. It is also available commercially up to levels having three times this standard potency.

Current research indicates that the enzyme may have these applications:

1. Animal feeds—to increase weight gains and feed efficiencies of ruminant and non-ruminant animals.
2. Brewing—to increase body of finished beers.
3. Citrous juices—as a clarifying agent and to increase juice yields.
4. Essential oils—to aid in extraction of essential oils and other natural flavors by breaking down plant cell walls.
5. Pharmaceutical—to aid in digestion of bulky matter which causes discomfort in old and young alike.
6. Septic systems and drain cleaner—destroy paper and other wastes.

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BRANCHES THROUGHOUT THE WORLD

(Continued from page 384)

found employment in industrial process control operations and is estimated currently to be yielding savings to industry of nearly 500 million dollars annually.

Some areas of cosmetic research, technology, and manufacture in which isotope techniques might well be employed have been discussed.

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PATENTS AND TRADEMARKS

(Continued from page 335)

court refused to get involved with the semantic question of whether the term PVP in the patent *includes* copolymers, it had no hesitancy about ruling on the semantic question of whether the copolymer in question *was* PVP. The fineness of this point may not be easy to grasp, but it is nevertheless there.

In ruling that the copolymer used by Barr was in reality PVP the court noted that it was a copolymer consisting of 70 per cent vinylpyrrolidone by weight and 30 per cent vinyl acetate by weight. This information was weighed, along with Dr. Mark's testimony, to which the court referred to as follows:

"Dr. Mark's experiments included not only the PVP NP K-30 and the PVP/VA E-735, but also copolymers of vinyl acetate containing respectively 90 per cent vinyl pyrrolidone, 80 per cent vinyl pyrrolidone. 60 per cent vinyl pyrrolidone, 50 per cent vinyl pyrrolidone, and 30 per cent vinyl pyrrolidone.

"His measurements show that (1) while the addition of more and more vinyl acetate reduces the affinity or degree of bonding of the polymer film to the hair, and likewise reduces the amount of moisture which the film can pick up from the atmosphere, particularly at higher humidities, in both respects, the degree of change from the characteristics of the homopolymer PVP NP K-30 to those of PVP/VA E-735 is not substantial; (2) the addition of more and more vinyl acetate does not bring about any sudden change in the character of the polymer but only gradual

(Continued on page 395)

Industry's Books . . .

Organic Syntheses, Volume 40 *(1960), 114 pp., John Wiley & Sons, Inc., New York, cloth,* **$4.**

This is an annual publication of satisfactory methods for the preparation of organic chemicals. Preparations appear in the alphabetical order of common names of the compounds. For convenience in surveying the literature concerning any preparation through Chemical Abstracts subject indexes, the Chemical Abstracts indexing name for each compound is given as a subtitle, if it differs from the common name used as the title.

Chromatographic And Electrophoretic Techniques, Vol. II — Zone Electrophoresis, *Edited by Ivor Smith, Ph.D., Lecturer in Chemistry and Biochemistry, Courtaud Institute, Middlesex Hospital, London, 215 pp., Interscience Publishers, Inc. (1960), cloth,* **$5.50.**

This is a practical book, which should be of use to all academic and industrial chemists and biochemists who wish to apply electrophoretic techniques to their problems. Usually a single apparatus has been described with all practical details necessary for its operation and with a minimal number of buffers, solvents, location reagents, and stains for adequate resolution and location of the various families of interest. Individual chapters deal with each electrophoretic technique that can be considered suitable for routine application. Thus separate chapters deal with paper electrophoresis, cellulose acetate electrophoresis, and immunodiffusion techniques, starch, agar gel, and foam rubber electrophoresis, and high voltage electrophoresis; moving boundary methods are excluded, as they do not come within this definiation of routine. Among the more important families discussed are the proteins, lipoproteins, and other serum components, normal and abnormal haemoglobins, aminoacids, indoles, and phenolic compounds. In each case great stress has been laid on the correct practical methods for each technique, and the various pitfalls that may be encountered and how they may be overcome.

Pharmaceutical Arithmetic, *by Ignatius J. Bellafiore, Associate Professor of Pharmacy, St. John's University College of Pharmacy, Jamaica, N. Y., 4th Ed. (1960), 152 pp., 8½" x 11", paper binding,* **$4.25.**

This continues the best features of previous editions with all the traditional essential arithmetic used by the pharmacist at the prescription counter and in manufacturing official preparations. In line with modern curricula, there have been omitted chemical calculations, business arithmetic, and the like, which are generally no longer taught as part of the calculations course. Topics covered include: (1) Weights and measures: metric, apothecary, avoirdupois, and U. S. fluid systems; (2) Use of specific gravity in weight-volume calculations; (3) Percentage preparations; (4) Dilution and alligation; (5) Proof of alcohol; and (6) Dosage, triturations, stock solutions, etc.

New and Nonofficial Drugs 1961, *J. B. Lippincott Company, Phila., 849 pp., cloth,* **$4.**

New and Nonofficial Drugs is an annual publication of the Council on Drugs of the American Medical Association, containing descriptions of drugs evaluated on the basis of available laboratory and clinical evidence. Its scope comprises agents proposed for use in or on the human body for the diagnosis, prevention, or treatment of disease, whether or not their usefulness has been definitely established. Descriptions are limited to individual drugs generally available in the United States which have not been included in the Pharmacopeia of the United States, The National Formulary, or New and Nonofficial Drugs for a prior cumulative period of 20 years. Each drug is described in the form of a monograph providing the following information: the recognized nonproprietary name or names, together with the commercial name or names of preparations marketed in the U. S.; chemical or biologic identity, including pertinent properties; actions and uses, including comparisons with related drugs, limitations, side effects, toxicity, contraindications or precautions; dosage and routes of administration; and preparations, available sizes or strengths.

Aerosols: Science and Technology, *edited by H. R. Shepherd, Aerosol Techniques, Inc., 548 pp., Interscience Publishers, Inc., New York, (1961), cloth,* **$22.50.**

The aerosol industry has experienced phenomenal scientific and commercial progress since the early stages of its development. This book was planned to make available, in a single volume, a complete survey of the information on the improvements and inventions in this field. Contents: (1) Aerosols in Modern Industry by H. R. Shepherd; (2) Theory and Practice of Aerosols by Ralph C. Downing; (3) The Metal Container by Robert A. Foresman, Jr.; (4) Glass and Plastic Containers by Ralph H. Thomas; (5) Valves by Walter C. Beard, Jr.; (6) Propellents by Fred T. Reed; (7) Laboratory Techniques by Montfort A. Johnsen; (8) Factors in Formulation Design by Morris J. Root; (9) The Odor of Aerosol Products by Edward Sagarin; (10) Cosmetics: Fragrance and Personal Hygiene Products by Samuel Prussin; (11) Hair Cosmetics by Martin G. Brookins; (12) Pharmaceutical Products by Irving Porush; (13) Food Aerosols by W. E. Graham; (14) Pesticides by George W. Fiero; (15) Coating Compositions by F. A. Bower and F. S. Palmer; and (16) Household and Industrial Specialties by N. J. Froot.

Lipide Metabolism, *edited by Konrad Bloch, Department of Chemistry, Harvard University, 411 pp., John Wiley & Sons, Inc., New York, (1960), cloth,* **$10.50.**

This book summarizes current knowledge of the intermediary metabolism of lipides. It deals with the biosynthesis and degradation of the fatty acids, of triglycerides, phospholipides, sterols and bile acids, and with the enzymes which participate in lipide metabolism. Included are chapters on the chemistry and immunochemistry of bacterial lipides and on hormonal and other mechanisms that control the transformation of lipides. Each article has been written by an authority in the field, and with Hanahan's "Lipide Chemistry," this book completes a two-volume set on the principles and concepts of lipides.

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COMING EVENTS . . . . .

MARCH

7 Seminar on Physical Pharmacy (Tuesdays from 7 to 9 p.m. through May 29), The College of Pharmacy, Rutgers University, Newark, N. J.

15 American Society of Perfumers, open meeting, Advertising Club, 35th St. & Park Ave., N. Y. C. (A.S.P., 630 Fifth Ave., N. Y. C. 20)

15-18 Pharmaceutical Wholesalers Assn. annual convention, Las Vegas, Nev.

17 St. John's University College of Pharmacy, annual pharmacy congress, University Campus, Jamaica, L. I. (Annual Pharmacy Congress, St. John's University, Jamaica 32, N. Y.)

20-31 Purdue Univ. Industrial Packaging Institute, industrial packaging short course, Purdue Univ., Lafayette, Ind. (Mark E. Ocker, Memorial Center, P.U., Lafayette, Ind.)

21-30 American Chemical Society, spring meeting, St. Louis, Mo. (A. T. Winstead, A.C.S., 1155 Sixteenth St., N.W., Washington 6, D. C.)

31 Packaging Institute and the National Paper Box Manufacturers Assn., symposium on set-up boxes, Sheraton Hotel, Philadelphia, Pa. (Chas. A. Feld, P.I., 342 Madison Ave., N. Y. C. 17)

APRIL

12 Society of Cosmetic Chemists, N. Y. Chapter, annual ladies night, N. Y. C. (R. K. Lehne, Colgate-Palmolive Co., 105 Hudson St., Jersey City 2, N. J.)

10-13 American Management Assn. National Packaging Exposition and Conference, Lakefront Exposition Hall, Chicago, Ill. (A.M.A. Nat. Pack. Exposition, 1515 Broadway, N. Y. C. 36)

10-14 Federation of American Societies for Experimental Biology, 45th annual meeting, Atlantic City, N. J.

11 Society of Cosmetic Chemists, Chicago Chapter meeting, (S.C.C., 2 E. 63rd St., N. Y. C. 21).

13 Pharmaceutical Advertising Club, meeting, Roosevelt Hotel, N. Y. C. (P.A.C., 489 Fifth Ave., N. Y. C.)

13 Synthetic Organic Chemical Manufacturers Association, luncheon meeting, Hotel Roosevelt, N. Y. C. (S.O.C.M.A., 41 E. 42nd St., N. Y. C. 17)

13 American Society of Perfumers, annual symposium, 2:00, Essex House, Central Park South, N. Y. C. (See above.)

15 German Society of Cosmetic Chemists, lectures, Hamburg: Dr. Thomas, essential oils; Dr. Ludde, dielectric and refractometric evaluations on fatty oils; Dr. Mohrberg, plastics as packaging material for cosmetic products. (N. V.'t Roedthuys, Tesselschadestraat 5, Amsterdam, The Netherlands.)

20-21 Society of the Plastics Industry, western section conference, del Coronado Hotel, Coronado, Calif. (S.P.I., 250 Park Ave., N. Y. C. 17)

21 Parenteral Drug Assn., scientific meeting (all-day session) Edgewater Beach Hotel, Chicago, Ill. (P.D.A., 1420 Snyder Ave., Philadelphia 45, Penna.)

23-27 Society of American Bacteriologists, annual meeting, Morrisson Hotel, Chicago, Ill., preceded by a Symposium on Marine Microbiology (April 20-22) co-sponsored by the Office of Naval Research and the S.A.B. (J. C. McCaffrey, Ill. Dept. of Public Health, 1800 W. Fillmore St., Chicago 12, Ill.)

23-28 American Pharmaceutical Assn. annual meeting, Hotel Sherman, Chicago, Ill. (F. V. Porkorny, A.P.A., 2215 Constitution Ave., N.W., Washington 7, D. C.)

24-26 Animal Health Institute, annual meeting, Mayflower Hotel, Washington, D. C.

28-29 American College of Apothecaries, annual mid-year conference (in conjunction with the meeting of the American Pharmaceutical Association) Hotel Sherman, Chicago, Ill. (A.C.A., Hamilton Court, 39th and Chestnut, Phila., Pa.)

APRIL *(Cont'd)*

29 **Toiletry Merchandisers Assn.**, to May 6, (Americana) Bal Harbour, Fla.

MAY

1-3 **Pharmaceutical Manufacturing Assn.**, annual meeting, The Greenbrier, White Sulphur Springs, W. Va. (P.M.A., 1411 K St. N.W, Wash. 5, D. C.)

2-9 **International Packaging Exhibition**, Amsterdam, Holland (Verpakkingsbeurn, Tesselschadestraat 5, Amsterdam, Holland)

4-7 **National Industrial Pharmaceutical Research** annual conference, King's Gateway, Land O'Lakes, Wis.

9-11 **Toilet Goods Assn.**, convention, and Scientific Section meeting (May 11), Waldorf-Astoria Hotel, N. Y. C. (Kathryn Fitzpatrick, T.G.A., 1270 Avenue of the Americas, N. Y. C. 20)

11 **Pharmaceutical Conference**, tenth annual, Rutgers Univ. College of Pharmacy, Newark, N. J.

11 **Pharmaceutical Advertising Club**, meeting, Roosevelt Hotel, N. Y. C. (See above.)

11-13 **German Society of Cosmetic Chemists** together with the **Society of Aesthetic Medicine**, congress at Konstanz

12 **Society of Cosmetic Chemists**, semi-annual meeting, Biltmore Hotel, N. Y. C. (S.C.C., 2 East 63 St., N. Y. C. 21)

14-16 **Creative Packaging of Consumer Goods** seminar, sponsored by Engineering Extension, University of California, Lake Arrowhead, Calif. (Dept. K, Univ. Extension, U. of C., Los Angeles 24, Calif.)

14-17 **Flavoring Extract Manufacturers Assn.** annual meeting, Savoy-Hilton Hotel, N. Y. C. (John S. Hall, Hickery & Hall, 1051 First National Bank Bldg., Chicago 3, Ill.)

14-17 **The Proprietary Assn.**, annual meeting, The Greenbrier, White Sulphur Springs, West Virginia (P.A., 810 Eighteenth St., N. W., Washington 6, D. C.)

15-17 **Chemical Specialties Manufacturers Assn.**, annual meeting, Hotel Drake, Chicago. (C.S.M.A., 50 E. 41st St., N. Y. C. 17)

17 **American Society of Perfumers**, closed meeting, Advertising Club, 35th St. & Park Ave., N. Y. C. (A.S.P., 630 Fifth Ave., N. Y. C. 20)

22-24 **Synthetic Organic Chemical Manufacturers Association**, Spring outing, Skytop Lodge, Skytop, Pa.

22-25 **American Society of Design Engineers**, Design Engineering Show, Cobo Hall, Detroit, Mich. (Clapp & Poliak, Inc., 341 Madison Ave., N. Y. C. 17)

22-26 **American Society of Tool and Manufacturing Engineers**, Engineering Conference and Tool Show, New York City Coliseum.

JUNE

4-7 **Annual National Industrial Pharmaceutical Research Conference**, King's Gateway, Land O' Lakes, Wisconsin, Extension Services in Pharmacy, University of Wisconsin (Richard S. Strommen, E.S.P., 301 Chemistry Bldg., University of Wisconsin, Madison, Wisc.)

5-9 **Society of Plastics Industry**, National Plastics Exposition and annual national conference, Coliseum and Hotel Commodore, N. Y. C. (S.P.I., 250 Park Ave., N. Y. C. 17)

6-8 **Instrument Society of America**, conference and exhibit, Toronto, Canada.

9-17 **Achema, International Chemical Engineering Exposition and Congress**, including the annual meetings of the **Dechema Society** and the **Isotopen-Studiengesellschaft**, Frankfurt am Main, Germany (Chicago Section, A.C.S., 86 East Randolph St., Chicago 1, Ill.)

12-16 **Gordon Research Conference**, Lipide Metabolism, Kimball Union Academy, Meriden, N. H. (Dr. W. George Parks, University of Rhode Island, Kingston, R. I.)

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JUNE *(Cont'd)*

12-29 **Rochester Institute of Technology,** annual statistical quality control intensive courses for the chemical and processing industries, staff from American Society of Quality Control, Chemical Division, (industrial statistics and quality control, 12-21; design of experiments, 22-29; applications seminar, 20-21) Rochester, N. Y. (Harold M. Kentner, Director, Extended Services, Rochester Institute of Technology, Rochester 8, N. Y.)

13 **Society of Cosmetic Chemists,** Chicago Chapter meeting, (See above).

14 **Society of Plastics Engineers,** Plastics in Packaging, Quebec Section, Montreal, Quebec, Canada

15 **Synthetic Organic Chemical Manufacturer's Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

15-16 **Drug and Allied Products Guild,** annual meeting, Concord, Kiamesha Lake, N. Y.

15-16 **American Chemical Society,** National Colloid Symposium, Univ. of Rochester, Rochester, N. Y. (A.C.S., 1155 Sixteenth St., N. W. Washington 6, D. C.)

19-23 **Gordon Research Conference,** Cell Structure and Metabolism, Kimball Union Academy, Meriden, N. H. (See above.)

22-25 **American Therapeutic Society,** Essex House, N. Y. C.

23 **Parenteral Drug Assn.,** scientific meeting (afternoon and evening), Warwick Hotel, Philadelphia, Penna. (P.D.A. 1420 Snyder Ave., Philadelphia 45, Penna.)

25-30 **American Medical Assn.,** Exposition, New York City Coliseum, annual meeting, N. Y. C.

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26-30 **Pharmaceutical Advertising Club,** meeting, N. Y. C. (See above.)

27-29 **Society for Investigative Dermatology,** N. Y. C.

JULY

3-7 **Gordon Research Conference,** Vitamins and Metabolism, Kimball Union Academy, Meriden, N. H. (See above.)

10-14 **Gordon Research Conference,** Chemistry, Physiology and Structure of Bones and Teeth, Kimball Union Academy, Meriden, N. H. (See above.)

10-21 **Philadelphia College of Pharmacy and Science,** postgraduate course in the preparation of parenteral products, under the direction of Dr. Kenneth E. Avis, Associate Professor of Pharmacy. (Registrar, Philadelphia College of Pharmacy and Science, 43rd St., Kingsessing and Woodland Avenues, Phila. 4, Pa.)

17-21 **Gordon Research Conference,** Microbiological Deterioration, Tilton School, Tilton, N. H. (See above.)

31 **Gordon Research Conference,** Medicinal Chemistry, through Aug. 4, Colby Junior College, New London, N. H. Steroids and Other Natural Products, New Hampton School, New Hampton, N. H. (See above.)

AUGUST

7-11 **Gordon Research Conference,** Toxicology and Safety Evaluations, Kimball Union Academy, Meriden, N. H. (See above.)

10-16 **International Congress of Biochemistry,** Moscow, U.S.S.R. (N. W. Sissakian, Leninsky prospekt 33, Moscow, B-71, U.S.S.R.)

(Continued on page 400)

(*Continued from page 388*)

changes; (3) none of the essential properties of polyvinylpyrrolidone as described in the patent in suit are lost or significantly interfered with by the insertion of 30 per cent vinyl acetate; and (4) whatever modification occurs by reason of the incorporation of 30 per cent vinyl acetate with the vinyl pyrrolidone in the accused PVP/VA E-735 is very similar to a modification suggested in the patent itself.

"Thus the patentee, in the patent, suggests that the film deposited by his hair spray may be made somewhat more flexible by the addition of a plasticizer called diethyl phthalate. This material is not only known to be a plasticizer, but is also known to be a water repellent one which tends to reduce the hygroscopicity of the polymer film, i.e. the amount of moisture which the plasticized film will pick up from the atmosphere. Charts were submitted by Dr. Mark showing that the addition, by physical mixture, of larger and larger quantities of diethyl phthalate brings about a gradual reduction in the hygrosscopicity of PVP NP K-30 films. This is the same effect which is achieved by internal modification when the vinyl pyrolidone monomers are copolymerized with larger and larger amounts of vinyl acetate, instead of being polymerized alone, to form the homopolymer.

"Witness Mark also illustrated the fact that both the PVP NP K-30 with diethyl phthalate and the PVP/VA E-735 are more flexible than the unplasticized PVP NP K-30. He also measured the hygroscopicity of films sprayed from various commercial hair sprays, including plaintiff's product 'Style,' the product of plaintiff's licensee Breck, and three of the products manufactured by Barr. The measurements show that the differences among them were insubstantial, even at high humidities.

"In Dr. Marks opinion, PVP/VA E-735 is equivalent to PVP NP K-30 for aerosol hair spray purposes. He explained the reason for the equivalence to be that the essential properties of the polymer in both cases are imparted by the vinyl pyrrolidone monomer. He said the vinyl acetate was essentially a dilutent.

"Practical evidence of equivalency was presented which showed that during 1957, GAF's facilities for the production of the vinyl pyrrolidone monomer were unable to keep up with the demand, and it then had available only limited quantities of PVP NP K-30 and limited qantities of PVP/VA E-735. At least one of the major cosmetic companies used these two products interchangeably, from batch to batch, in the same hair spray under the same label."

The judge arrived at the conclusion that the defendants' copolymer PVP/VA E-735 was covered by the patent by ruling that it is in effect simply a diluted form of PVP NP K-30, which is polyvinylpyrolidone. The court found that the practical effect of the vinyl acetate component corresponds generally with

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the practical effect of physically added plasticizer, diethylphathalate. The court applied the law that one cannot escape the claims of a patent by diluting its ingredients or inserting additives or modifiers that do not change the essence of the invention.

The Validity Issue

The court pointed out that the law is that a patent is presumed to be valid and the burden of establishing its invalidity is upon the defendant. Also, it was noted that the legal presumption of validity is entitled to especially great weight where the prior art relied upon by the alleged infringer was carefully considered by the Patent Office, as apparently was the case here.

The court was also impressed with the fact that the Spiegel application went through a vigorous interference proceeding in the Patent Office (thereby accounting for a good part of the six and one-half year pendency of the application in the Patent Office).

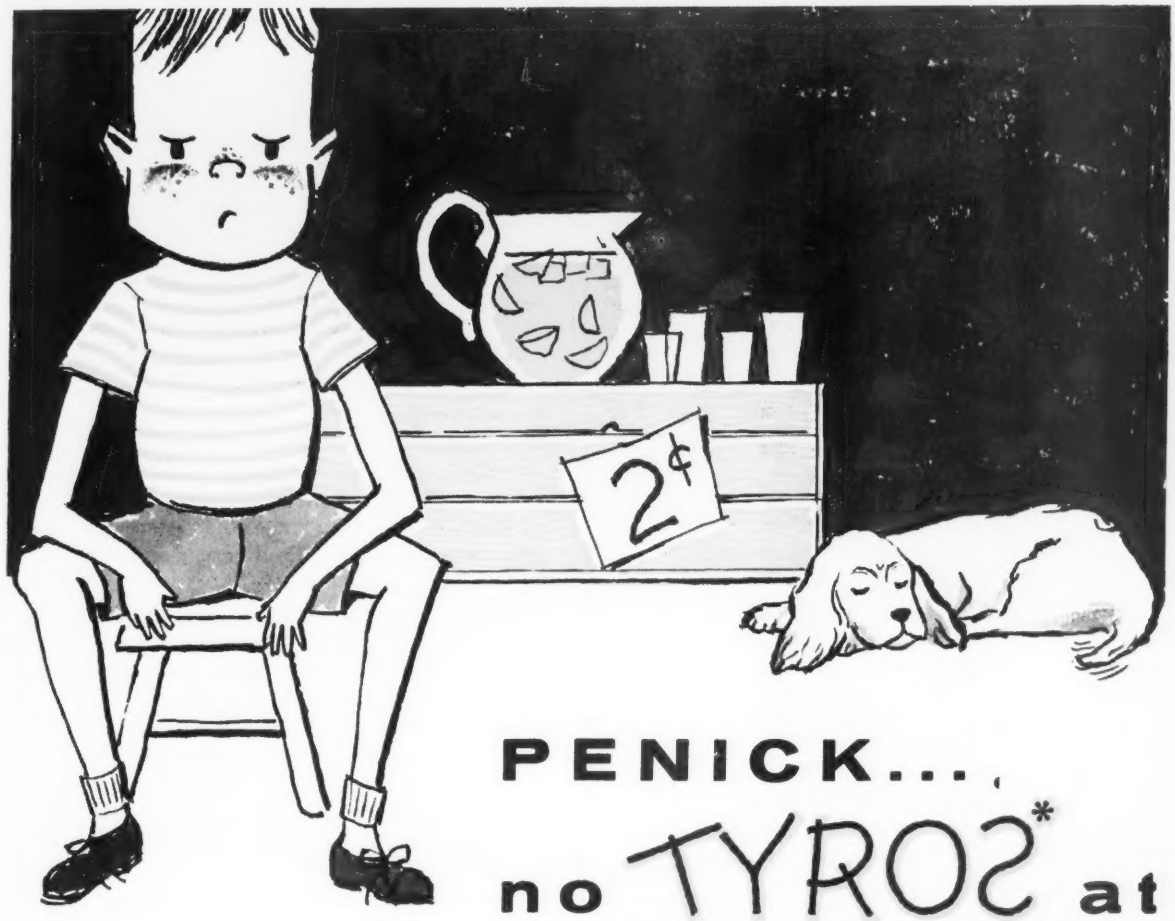
The court considered that Spiegel's invention in essence was finding the compatability of Freons, alcohol and PVP, and the application of PVP to the hair from a substantially water-free alcohol solution. The court ruled that the compatability of these substances and their application from a water-free alcohol solution involved a new combination and the use of substances which, although individually known and appreciated, had never before been combined for use in this fashion. In the court's words:

'The facts here show that Spiegel's composition was not obvious to those skilled in the art. Barr's chemists did extensive research in the field of aerosol hair spray for several years but failed to discover the Spiegel composition. Even after having some of the composition in hand, neither Barr's chemists nor those of the Catalin Corporation of America and the American Cyanamid Company could discover that resin LM was PVP. Martinelli, a research worker for GAF, did research work for many months and did not come up with Spiegel's solution. It is logical to conclude, therefore, that it was not obvious to those skilled in the art that you could take PVP, always thought of before as exclusively a pharmaceutical chemical, and merge it with alcohol and Freon in an aerosol container and spray it on the hair from a water-free solution.

"In the case of chemical combinations, a different standard of inventiveness is required than in the case of mechanical inventions. Chief Judge Yankwich of the Southern District of California noted this difference in the case of Everlube Corporation of America v. Electrofilm, Inc., S.D. Calif., 154 F. Supp. 788, 791, 115 USPQ 260, 263 (1957), affirmed C.A. 9, 265 F. 2d 495 121 USPQ 167 (1959), when he said:

" 'The Supreme Court recognizes that while in mechanics the uniting of old elements may not satis-

(*Continued on page 398*)



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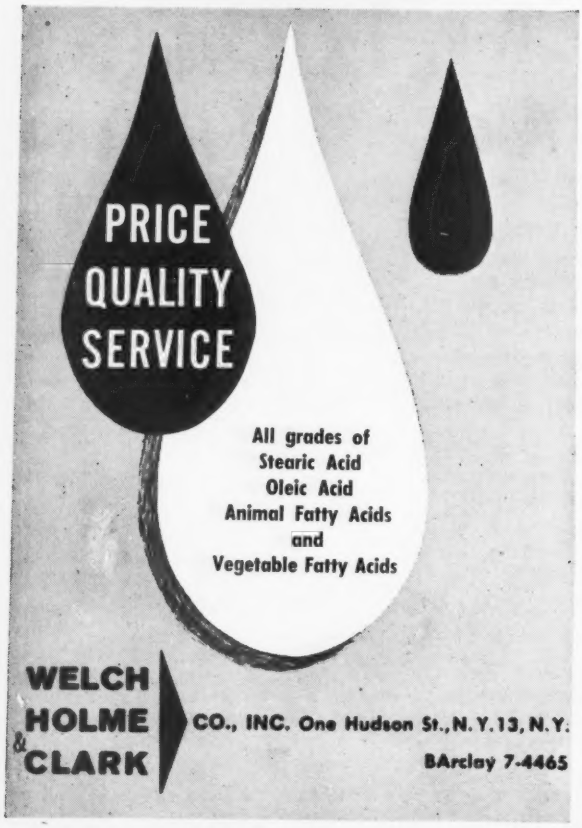

(*Continued from page 396*)

fy the concept of invention, because the elements may continue, in combination, to perform the same function as before, with no different result, this is not true in chemistry. This for the reason that a chemical element, in a different combination, may achieve a new quality or function.

" 'This fact, the verity of which is obvious, is of great significance in a case of this character in which it is insisted that all the elements used to achieve the result are well known in chemistry, and that all the patentee did was to urge their use in the particular combination.' "

There was also great commercial success obtained by aerosol PVP hair sprays. This impressed the judge, who felt that this constituted evidence of invention.

Another factor that the judge considered in ruling that Spiegel's invention was unobvious was that it had been imitated by most of the cosmetic industry. Such imitation is recognized as persuasive evidence of invention.

Nor was the judge impressed with the defendants' contention that, if the term "PVP" is given a more generic meaning so as to include copolymers, then the claims are invalid because "the inventor, when he comes to write his patent, cannot describe his invention in general terms which would include many other chemical substances, some of which would carry out the rule of the patent, but many of which could not be thus employed; that is, the inventor cannot disclose a small number of compounds which will serve as a springboard for claiming an entire class."

The court ruled that plaintiff was not contending that PVP extends to *every* copolymer of vinylpyrrolidone, but merely that it includes homopolymers and those copolymers of vinylpyrrolidone with other monomers that retain all of the essential attributes that are specifically set forth by the patent, and which are contributed by the vinylpyrrolidone substituent. It appears that the record showed, with the exception of monomers which introduce cross-linking (a predictable phenomenon), every copolymer of vinylpyrrolidone with some other monomer would retain the PVP characteristics for the purpose of the patent in certain proportions of the added monomer, but would lose one or more of those characteristics at higher proportions of the added monomer.

The court applied the rule that, where the nature of a particular art or science is such that the claims of a patent cannot be absolutely precise, the law requires only that degree of precision which is reasonable under the circumstances.

The thinking of the court is well summarized in the following words taken from the decision:

"So, in this case, faced with the fact that the defendant has appropriated the essence of the Spiegel invention, the Court will not strike down a patent on a meritorious invention, regardless of whether in-

fringement is found by interpretation of the claims or under the doctrine of equivalents.

"Here, the specification and claims demark the boundary areas so as to inform someone skilled in the art of the nature of the invention. Dr. Mark testified that he could not provide any words or figures which could any better define the boundaries with respect to molecular composition. This testimony is authoritative and uncontradicted, and the Court is satisfied that the claims are sufficiently definite. To rule otherwise would amount to a holding that, in patents involving the use of a polymer, the inventor must either restrict himself so narrowly as to invite imitation or else find his patent invalidated on grounds of indefiniteness.

"Furthermore, the claimed indefiniteness is all hypothetical in nature; the only copolymers of vinyl pyrrolidone which are commercially available are those with vinyl acetate. Although there is undoubtedly and inherently some gray area with respect to copolymers of vinyl pyrrolidone and vinyl acetate, PVP/VA E-735 is not in the gray area. This product falls clearly within the claims. Since this is the accused product with which the defendants are infringing, they may not, with propriety, raise objections based upon hypothetical uncertainties. In the language of the Court of Appeals for the Ninth Circuit:

" 'If it is indefinite in some respects due to the comprehensive character of the invention and of the claims therefor, it is not uncertain in the area of description involved in this action. Any vagueness in these outlying boundaries of the description does not invalidate the patent as to that which is clearly defined.' "

RECENT PATENTS

2,966,502—Takeda Pharm. Ind., Japan—Pentahydroxysteroid and Its Esters.

2,966,503—Organon, Inc.—3-Unsubstituted-19-Nor-Steroid Compounds.

2,967,129—Abbott Labs.—New Erythromycin Esters.

2,967,130—Robert G. Sanders et al.—p-Sulfamyl β-Hydroxyethyl Carbanilate Diuretic Compositions.

2,967,132—U. S. A.—Process of Using Bacterial Spores as Indicator System for Determination of Antibacterial Activity.

2,967,179—Glaxo Labs. (England)—Diamine Salts of 21-Phosphate Esters of Steroid Compounds of the Pregnane and Allopregnane series.

2,967,182—Eli Lilly and Company—Novel Substituted Tetrahydropyridines.

2,967,188—G. D. Searle—3, 17- Bioxygenated 7-Acylthioestra-1, 3, 5(10)-Trienes.

2,967,801—Merck & Co. Inc.—Use of Vitamin D in Preventing Hypercalcuria Resulting from Adrenal Cortical Steroid Administration.

2,967,860—Olin Mathieson—5-Trifluoromethyl Derivatives of Vitamin B_{12}

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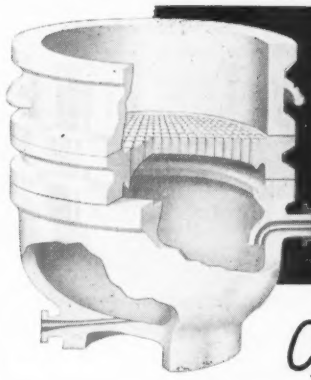

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2,967,865—W. R. Grace—Piperazinium Salts.
2,968,592—Hamilton Pharmacal Co.—Polyvinylpyrrolidone Penicillin Treatment of Bovine Mastitis.
2,968,655—Upjohn — 11-Oxygenated-6-Methyl Progesterone and Intermediates Therefor.
2,968,656—Syntex — 14α, 15α-Epoxido-Δ^4-Pregnen-21-Ol-3, 20-Dione.
2,968,660—Givaudan—Epoxy Patchoulanes and Method for Preparing Patchoulione Therewith.
2,968,662—Syntex — 6-Halo-6-Dehydro Derivatives of 11-Oxygentated-9α-Haloprogesterones.
2,968,663—Syntex—$\Delta^{1,4}$-Pregnadiene-19, 21-Diol-3, 20-Dione and Esters Thereof.
2,969,352—Union Carbide—Antibiotic Compounds.
2,969,353—Merck—Process for the Preparation of "Active Methionine" and Products Obtained Thereby.
2,969,357 — Rheinpreussen Aktiengesellschaft (Germany)—Penicillin Salts of Amino Salicylates.
2,969,361—Monsanto — 2, 4-Substituted-6, 7-Dihydro-5H-Cyclopenta[d] Pyrimidines.
2,969,362—G. D. Searle—2-[α-(Haloalkyl)Benzylthio] Imidazolines and Tetrahydropyrimidines corresponding.
2,969,363—Endo Labs.—Novel Salts of Barbituric Acids.
2,969,364—Upjohn—Derivatives of 5-Amino Uracil.
2,969,368—Merck—N-[β-(p-Acylaminophenyl)Ethyl]-4-Phenyl-4-Carboethoxypiperidine Compounds.

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2,969,369—G. D. Searle—Derivatives of 3-Phenyl-5, 6-Dihydroimidazo-[2. 1-b] Thiazoles.
2,969,371—Robert A. Braun et al.—Substituted Indeno [1, 2-c] Pyrazole Derivatives.
2,969,372—Robert A. Braun et al.—Cycloalkylpyrazolo [3, 4-a] Inden-4 [1H]-One Derivatives.
2,969,373—Smith Kline & French—Trifluoromethylpyrazoloindenone Derivatives.
2,969,374—Smith Kline & French — Pyrazoloindenone Azines.
2,969,379—Upjohn—Androstane-11β, 17β-Diol and the 17-Esters Thereof.
2,969,391—Hoffmann-La Roche — Certain 1-Arylsulfonyl-3-(Tetrahydrodicyclopentadien-9-Y1) Ureas.
2,969,397—Hoffmann-La Roche — 2-Methyl-8-Phenyl-7-Nones-4-One.

COMING EVENTS

(*Continued from page 394*)

AUGUST *(Cont'd)*

20-24 American Veterinary Medical Assn., annual convention, Sheraton Cadillac Hotel, Detroit, Mich.

21-25 Gordon Research Conference, Food and Nutrition, Colby Junior College, New London, N. H. (See above.)

22-25 International Pharmacological Meeting (first), Stockholm, Sweden

28 Gordon Research Conference, Cancer, Colby Junior College, New London, N. H. (See above.)

SEPTEMBER

3-8 **American Chemical Society,** annual fall meeting, Chicago, Ill. (A.C.S., 155 Sixteenth St., N.W., Washington 6, D.C.)

4-8 **International Congress of Pharmaceutical Sciences,** Scientific Section, Pisa, Italy (Prof. Dott. A. E. Vitolo, General Secretary, Federation Internationale Pharmaceutique, Piazza Carrara, 10, Pisa, Italy)

5-8 **National Chemical Exposition,** concurrent with the fall national meeting of the **American Chemical Society,** The Chicago Ampitheater, Chicago, Ill. (Chicago Section, A.C.S., 86 Randolph St., Chicago 1, Ill.)

12 **Society of Cosmetic Chemists,** Chicago Chapter meeting, (See above.)

12 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

14 **Pharmaceutical Advertising Club,** meeting, Roosevelt Hotel, N. Y. C. (See above.)

14-17 **Drug, Chemical & Allied Trades Assn.,** annual meeting, Pocono Manor Inn, Pocono Manor, Pa.

17-20 **First Annual Conference on Pharmaceutical Analysis** sponsored by the Extension Services in Pharmacy in cooperation with The School of Pharmacy, University of Wisconsin, (Richard S. Strommen, 301 Pharmacy Building, Univ. of Wis., Madison, Wis.)

OCTOBER

10 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

31 **American Society for Microbiology,** first in series of Interscience Conference on Antimicrobial Agents and Chemotherapy. Commodore Hotel, N. Y. C.

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NOVEMBER

14 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

DECEMBER

7 **Synthetic Organic Chemical Manufacturers Assn.,** annual meeting and dinner, Hotel Roosevelt, N. Y. C.

THE NEW PRODUCT

(*Continued from page 308*)

this function must be compared with and found superior to other possibilities in compatibility, processing, and attaining and maintaining homogeneity. The purpose of a diluent must be related to either the function or the form of the product. Colors, odors, and tastes should relate to function and form. Some may be chosen to confer chemical or physical protection on an unstable component, others for their contributions to the form of the product, as in liquid products containing thickening agents to improve consistency. Ingredients selected to influence form may also influence function, or vice versa. Many combinations considered may be new, and effects other than the one justifying the selection may arise. These components are often available in various grades from different suppliers, and a choice must be made. The determination of specifications and tests for all the raw materials selected is not necessarily a function of the planning group, but the

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group must be aware of them, as well as satisfied that the specifications and tests are both adequate and limited to the purposes intended.

Consideration of the eventual plant processing of the new product is a major function of the technical planning group. A new product may not see the light of day if its production involves the installation of prohibitively expensive plant equipment. Ideally, processing should use existing equipment currently not in continuous use; at the other extreme, it may require new equipment in new space. In some circumstances a company may welcome the opportunity to acquire additional equipment and justify new space.

The group may proceed next to the question of laboratory, pilot plant, and manufacturing plant needed for this particular product. Small-scale and large-scale operations can produce different effects. It seems almost pointless to belabor the differences in solids and liquids that result from drying, compressing, mixing, and shearing actions on small or large scale. The major problem, since the difficulty is recognized, is in assessing the differences that will be encountered and allowing for processing changes to produce the same product characteristics at each stage.

Discussion may arise as to whether laboratory processing should be adjusted to anticipate the available pilot equipment, or whether the pilot plant should be equipped to duplicate any laboratory operation. The latter is, of course, highly desirable, but seldom attempted.

A third major source of difficulty is the influence of high-speed filling or packaging operations on a product. Normal laboratory apparatus and many pilot plants do not approximate the conditions encountered in modern filling and packaging equipment. With liquids, the major influence is usually the very high shear rates applied by high-speed nozzles, and the pumps needed to feed multiple-nozzle lines. One can often duplicate these high shear conditions in the laboratory in a rheological study, and an allocation for such a study must be made. Powders usually demonstrate segregation effects—stratification by particle size for a single-component powder, or both size and composition for a multiple-component powder. Such segregation effects must be anticipated and the influence they will have on product characteristics measured. It is not usually practical to prevent segregation in a powder; corrective measures must take account of acceptable limits and the degree of improvement possible.

Striking a proper balance between the amount of effort devoted to development research and to basic research requires a great deal of evaluation by the group members. If the staff is organized as a purely development function, the efforts to obtain supporting, fundamental information tend to be subordinated. If the staff is organized to cover both func-

tions, research and development may not be coordinated.

The nature of the basic information required usually arises from the group discussion. Following the general scheme for attacking problems, the group must define the nature of the problem and the knowledge needed. Resulting assignments must not be too specific, or they run the risk of being too restrictive and of assuming that a large portion of the required information is already available. A general approach flexible enough to consider new information as it is developed permits gradual restriction, until the work is precisely aimed at the desired goal. It is often desirable to continue the work beyond the desired goal, since the additional information gained may be useful to the company. A decision to halt or continue this work must take policy and circumstances into account, but publication of a technical paper will often bring much return to the firm in improved morale.

At various stages in the development of the new product from laboratory to pilot plant to plant, there must be some evaluation of the product. This will include both objective and subjective evaluation of its characteristics by the laboratory by a consumer panel.

At the same time, staff tests should be carried out. The subjective and objective evaluations and the shelf life are grouped together here because they often come together in new products. All procedures are greatly simplified if only one active component measures product characteristics and stability, and is also the major influence in subjective responses and consumer acceptance. The consumer appeal of a product comes not only from its most obvious characteristics, but frequently from those most difficult to reduce to quantitative determinations. The evaluation may include laboratory experts, or laboratory panels of nonexperts in larger numbers, or especially selected panels varying from one or two hundred, or it may be a large market test. If a product has therapeutic value, clinical tests by physicians are included, and the planning group must initiate clinical studies as soon as possible.

Stability testing must be sound to be useful. The replacement of empirical, accelerated age testing by the more precise and satisfactory use of kinetic data is becoming common. The problem need not be very complex. It is frequently possible to select for study the component or product characteristic which deteriorates most quickly. The deterioration must be properly identified, and its cause must be determined. This could be light, oxygen, water (vapor), gravity, or incompatibility with another component. The change or reaction, once identified and isolated, may be studied either as part of the product or independently. In many cases, proper experimentation at a few temperatures or under other specific conditions will give exact information. •

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